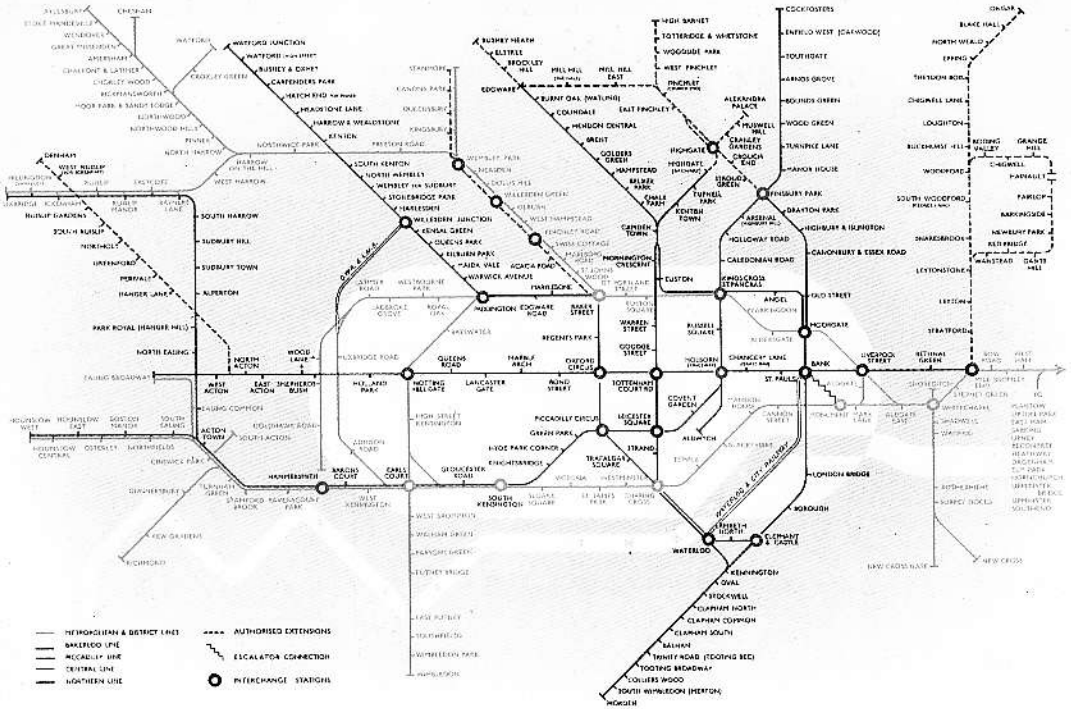


23 Card folder of 1938. A version of Beck's design executed by another hand without his foreknowledge. An airbrush technique was used to emphasise the central area and to indicate the line of the river (the latter counterchanging in tone where it entered the central area); the route lines were more slender than in any previous version of the Diagram; interchange stations denoted by single bold rings; and appreciably more space was gained for the design by removing the heavy border used on all previous card folders. With the exception of the last, all these changes were for the worse. The fact that this version was done by a designer of considerable ability, yet was a poor thing in comparison with Beck's original, demonstrates all the more clearly how well attuned the latter was to the demands of the Diagram. Note that the station names in this version are self-coloured, not black as in Beck's quad royal of 1937.

24 A quad royal poster of 1940 (right). Beck was confronted with three new requirements from the Board: to use interlinked rings for the interchange stations; to duplicate a large number of station names on the grounds that they served two Underground lines; and to change the 45° diagonals to 60° diagonals, on the supposition that this would accommodate more easily the (proposed) northeastward extension of the Central Line. The interlinked rings (mostly pairs but with some triplets) were clumsy and unhelpful; the duplication of the station names was a great irritation to Beck, included at the insistence of the Operating Department, but he was to be stuck with them until 1946; the 60° lines were not the boon they might at first have appeared to be, and were dropped.

Enter another hand

In this same year Beck was confronted by a serious challenge to his stewardship of the Diagram: a card folder version (23) closely based on his own design, but by another hand* (though unsigned). The interchange rings had been emboldened and the route lines had been made more slender; but the most distinctive modification was the addition of an airbrush rendering in blue-green, intended to highlight the central area. This was an irrelevance and an obfuscation. Where the graduated tone was at its strongest it reduced the legibility of some station names, especially those on the Metropolitan and District Lines, printed in green.

Beck was appalled at the result. In a letter to Christian Barman, the Publicity Officer of London Transport, dated 2 June 1938, he wrote:

I have just happened to see a proof of a new Underground folder. The 'H.C. Beck' diagram has been used, but with considerable and, I suggest, undesirable, alterations by another artist — one not on the staff — without reference to me.

The idea of redesigning the old geographical Underground map in diagram form was conceived by me in 1931; the original diagram, published in 1932 [sic] *was of my own invention and design. Every variation in it since has been either made by me or made by the lithographer under my supervision.*

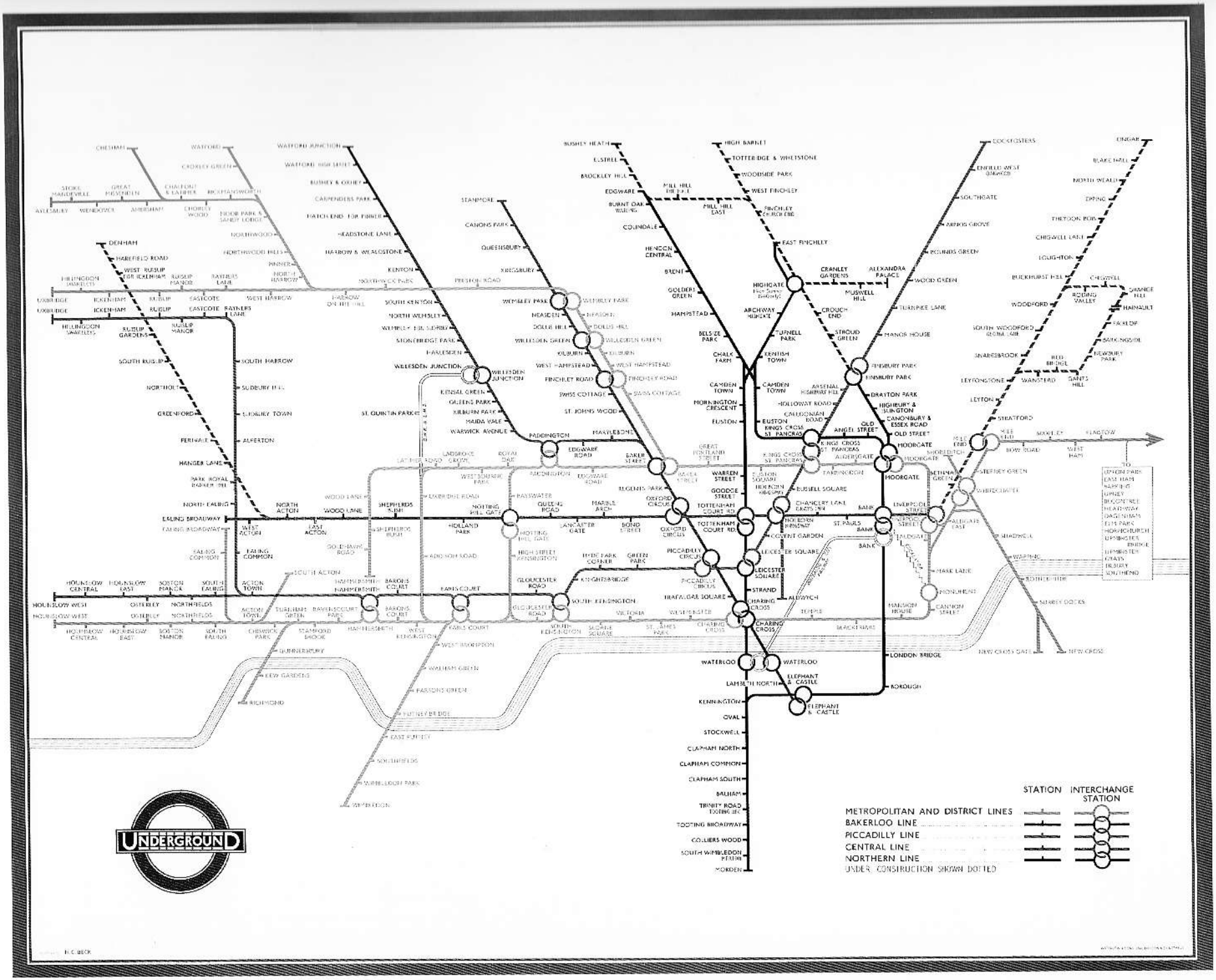
When I recently signed a form assigning the copyright of this design to the Board, it was not merely understood, but was promised, that I should continue to make, or edit and direct, any alterations that might have to be made to the design. This practice has been followed without exception since 1932.

I wish therefore to place on record my protest against the action taken in the present instance.

Barman replied in a memorandum dated June 8, 1938:

Thank you for your note of June 2. I agree with you that this diagram has been altered and not altogether for the better. An artist

* It has recently been established beyond doubt that this was Hans Schleger who, under the pseudonym Zero, had already designed a number of distinguished promotional posters for London Transport.


UNDERGROUND
STATION
INTERCHANGE STATION
METROPOLITAN AND DISTRICT LINES
BAKERLOO LINE
PICCADILLY LINE
CENTRAL LINE
NORTHERN LINE
UNDER CONSTRUCTION SHOWN DOTTED
CHESHAM
WATFORD
CROXLEY GREEN
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
MOOR PARK & SANDY LODGE
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
DENHAM
HAREFIELD ROAD
WEST RUISLIP
FOR ICKENHAM
RUISLIP MANOR
RAYNERS LANE
HILLINGDON HOSPITAL
UXBRIDGE
ICKENHAM
RUISLIP
EASTCOTE
WEST HARROW
HARROW ON THE HILL
HILLINGDON STATIONS
RUISLIP GARDENS
SOUTH RUISLIP
NORTHOLT
GREENFORD
PERIVALE
HANGER LANE
PARK ROYAL
DRIVER HILL
NORTH EALING
EALING BROADWAY
EALING COMMON
SOUTH HARROW
SUDBURY HILL
SUDBURY TOWN
ALPERTON
WATFORD JUNCTION
WATFORD HIGH STREET
BUSHEY & OXHEY
CARPENDERS PARK
HATCH END FOR PINNER
HEADSTONE LANE
HARROW & WEALDSTONE
KENTON
NORTHWICK PARK
PRESTON ROAD
SOUTH KENTON
NORTH WEMBLEY
WEMBLEY HILL
STONEBRIDGE PARK
HARLESDEN
WILLESDEN JUNCTION
KENSAL GREEN
QUEENS PARK
KILBURN PARK
MAIDA VALE
WARWICK AVENUE
ST. QUINTIN PARK
NORTH ACTON
WEST ACTON
EAST ACTON
WOOD LANE
SHEPHERDS BUSH
GOLDHAWK ROAD
SOUTH ACTON
ACTON TOWN
HOUNSLOW CENTRAL
HOUNSLOW EAST
HOUNSLOW WEST
OSTERLEY
NORTHFIELDS
BOSTON MANOR
SOUTH EALING
CHISWICK PARK
STAMFORD BROOK
RAVENSCOURT PARK
HAMMERSMITH
BARONS COURT
EARLS COURT
WEST KENSINGTON
GUNNERSBURY
KEW GARDENS
RICHMOND
WEST BROMPTON
WALHAM GREEN
PARSONS GREEN
FULHAM BROADWAY
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
STANMORE
CANONS PARK
QUEENSBURY
KENSAL GREEN
WEMBLEY PARK
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHNS WOOD
PADDINGTON
MARYLEBONE
EDGWARE ROAD
BAKER STREET
LANCASTER GATE
BOND STREET
MARBLE ARCH
QUEENSWAY
NOTTING HILL GATE
HOLLAND PARK
ADDISON ROAD
HIGH STREET KENSINGTON
GLOUCESTER ROAD
SOUTH KENSINGTON
KNIGHTSBRIDGE
HYDE PARK CORNER
GREEN PARK
PICCADILLY CIRCUS
OXFORD CIRCUS
TOTTENHAM COURT RD
GOODGE STREET
WARREN STREET
REGENTS PARK
BUSHEY HEATH
ELSTREE
BROCKLEY HILL
EDGWARE
BURNT OAK
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON
KENTISH TOWN
HIGH BARNET
TOTTERIDGE & WHETSTONE
WOODSIDE PARK
WEST FINCHLEY
FINCHLEY CHURCH END
MILL HILL EAST
EAST FINCHLEY
HIGHGATE
ARCHWAY
TUFNELL PARK
CROUCH END
CRANLEY GARDENS
MUSWELL HILL
ALEXANDRA PALACE
STROUD GREEN
FINSBURY PARK
ARSENAL
HIGHBURY HILL
HOLLOWAY ROAD
CALEDONIAN ROAD
KING'S CROSS ST. PANCRAS
EUSTON
ANGEL STREET
OLD STREET
CANONBURY & ESSEX ROAD
HIGHBURY & SUNTON
DRAYTON PARK
MANOR HOUSE
TURNPIKE LANE
WOOD GREEN
BOUNDS GREEN
ARNOS GROVE
SOUTHGATE
ENFIELD WEST (GRAFTON)
COCKFOSTERS
ENFIELD TOWN
BLAKE HALL
NORTH WEALD
EPPING
THEYDON BOIS
CHIGWELL LANE
LOUGHTON
BUCKHURST HILL
CHIGWELL
RODING VALLEY
ORANGE HILL
HAINAULT
FAIRLOP
BARKINGSIDE
WOODFORD
SOUTH WOODFORD (GROVE PARK)
SNAREBROOK
ILFORD
NEWBURY PARK
LEYTONSTONE
WANSTEAD
GANTS HILL
LEYTON
STRATFORD
MILE END
MORDEN
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD (TOOTING BEC)
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON (KEDIN)
WATERLOO
LAMBETH NORTH
ELEPHANT & CASTLE
KORDOUGH
LONDON BRIDGE
CHARING CROSS
TEMPLE
BLACKFRIARS
MANSION HOUSE
CANNON STREET
MONUMENT
MARK LANE
TOWER HILL
ALDGATE
ALDGATE EAST
BANK
ST. PAULS
MOORGATE
LIVERPOOL STREET
BISHOPSGATE
SHOREDITCH
BETHNAL GREEN
STEPNEY GREEN
WHITECHAPEL
MILE END
BOW ROAD
MARYLEBONE
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHNS WOOD
BAKER STREET
GREAT PORTLAND STREET
EUSTON SQUARE
KING'S CROSS ST. PANCRAS
FARRINGDON
BUSSELL SQUARE
CHANCERY LANE
HOLBORN
COVENT GARDEN
LEICESTER SQUARE
STRAND
ALDWYCH
TRAFALGAR SQUARE
CHARING CROSS
VICTORIA
WESTMINSTER
ST. JAMES'S PARK
SLOANE SQUARE
SOUTH KENSINGTON
GLOUCESTER ROAD
EARLS COURT
BARONS COURT
HAMMERSMITH
HOLLAND PARK
LANCASTER GATE
MARBLE ARCH
BOND STREET
OXFORD CIRCUS
TOTTENHAM COURT RD
GOODGE STREET
WARREN STREET
REGENTS PARK
MARYLEBONE
EDGWARE ROAD
PADDINGTON
LADBROKE GROVE
LATIMER ROAD
ROYAL OAK
WESTBOURNE PARK
BAYSWATER
NOTTING HILL GATE
HIGH STREET KENSINGTON
ADDISON ROAD
GREEN PARK
KNIGHTSBRIDGE
SLOANE SQUARE
ST. JAMES'S PARK
WESTMINSTER
VICTORIA
TEMPLE
BLACKFRIARS
MANSION HOUSE
CANNON STREET
MONUMENT
MARK LANE
TOWER HILL
ALDGATE
ALDGATE EAST
BISHOPSGATE
LIVERPOOL STREET
MOORGATE
BARBICAN
FARRINGDON
KING'S CROSS ST. PANCRAS
EUSTON SQUARE
HOLBORN
CHANCERY LANE
BUSSELL SQUARE
COVENT GARDEN
LEICESTER SQUARE
STRAND
ALDWYCH
TRAFALGAR SQUARE
CHARING CROSS
WATERLOO
LAMBETH NORTH
ELEPHANT & CASTLE
KORDOUGH
LONDON BRIDGE
NEW CROSS GATE
NEW CROSS
SURREY DOCKS
WARPING
BOW ROAD
MILE END
MORDEN
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD (TOOTING BEC)
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON (KEDIN)
MORDEN
TO
UPTON PARK
EAST HAM
PLAISTOW
UPNEY
BECONTREE
HEAVYTREE
DAGENHAM
ELM PARK
HORNCHURCH
UPMINSTER BRIDGE
UPMINSTER
GRAYS
ROMFORD
SOUTHEND
H. C. BECK

was engaged with the one object of trying by means of a coloured background and a different station indication to emphasise the inter-change facilities of the Underground so that the special (and I think very ugly) inter-change map might be dispensed with. Neither Mr. Patmore nor myself quite realised how far he had gone before we saw a proof. I hope you will make a note of your points and let Mr. Patmore have them so that the diagram may be put right when next reprinted.

Beck was naturally relieved to have Barman's confirmation of his own poor view of the altered diagram. He was not so reassured to note that nothing was said in Barman's memo regarding the promise about his (Beck's) continuing responsibility for the Diagram. That issue was to resurface in 1946 and again in 1960 when, as we shall see, he was to become embroiled in a bitter dispute which caused him immense distress. For the time being, however, his forthright defence of his position had the desired effect, and he was duly consulted on, and made responsible for, all design changes.

The episode of the linked rings and other oddities

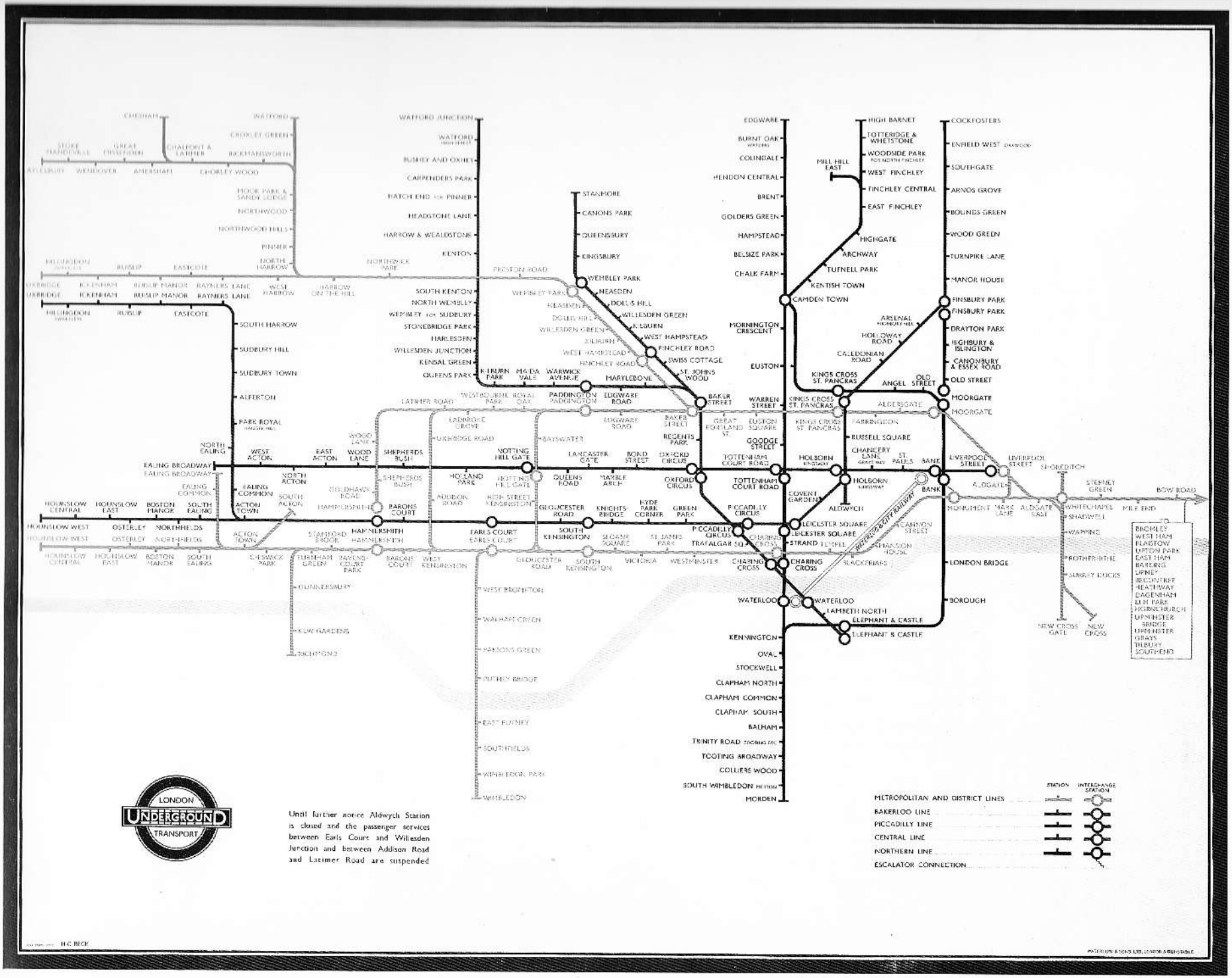
In 1939 Beck set about incorporating three new devices in one Diagram (**24**), issued in early 1940: the use of pairs and triplets of interlinked rings to denote interchange stations; the duplication of a large number of station names serving two lines and the triplication of four of them; and a change in the angle of diagonal route lines from 45° to 60° to the horizontal. While some justification could be advanced for the latter, on the basis that it could more conveniently encompass the proposed Central Line extensions to the northeast and northwest, the use of multiple rings as interchange station symbols merely added complexity without increasing clarity; on the duplication of station names, Beck knew this to be a pointless exercise at the outset ('I was not happy about it', he wrote later) but he carefully tried to meet the wishes of the Operating Department, which had a bee in its bonnet about the matter. The interlinked rings and the 60° angle did not last beyond 1941, but the unhappy and unnecessary duplication and triplication of station names were to remain a feature of the Diagram until 1946.

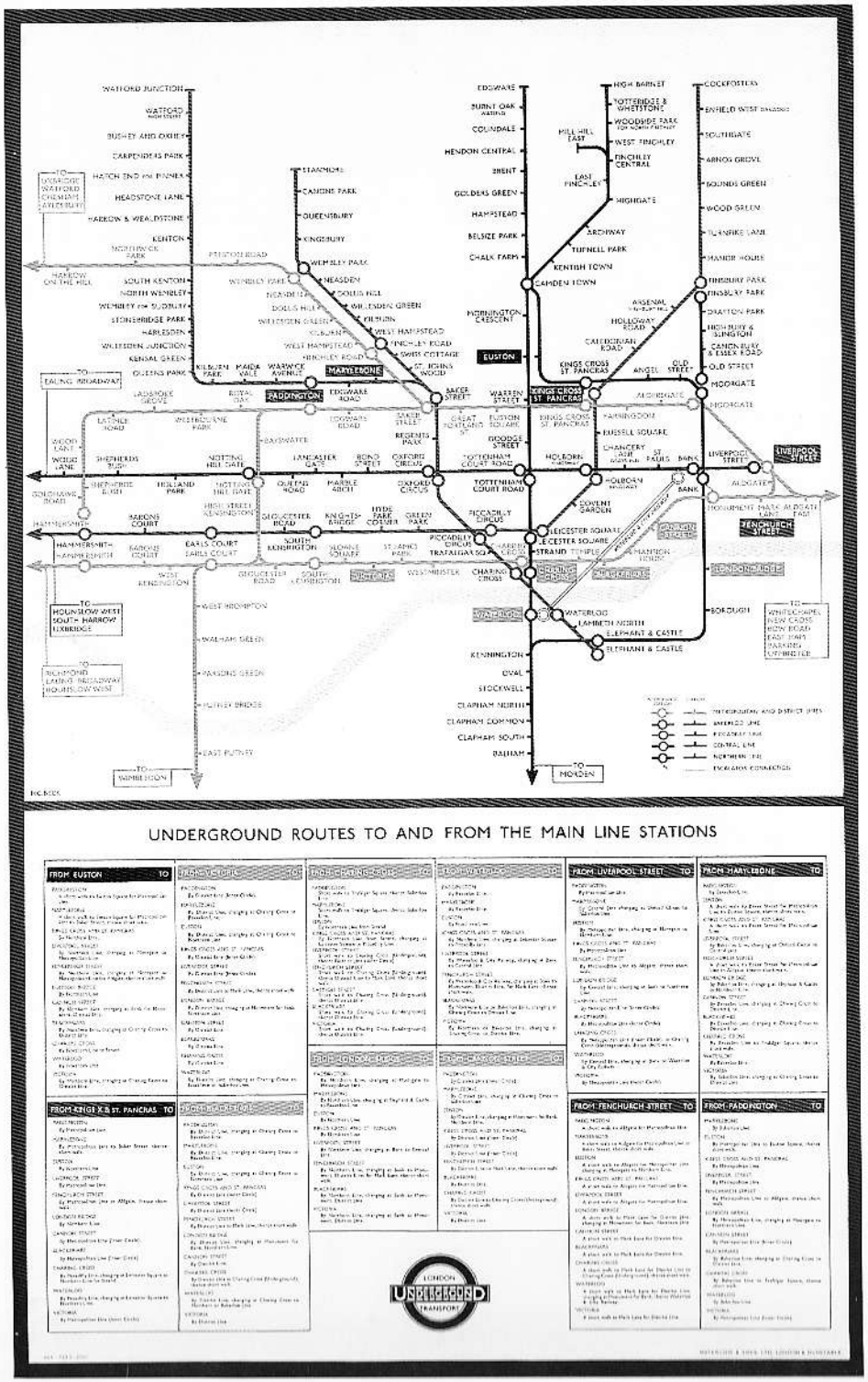
The three changes listed above were imposed on Beck by others, but one other unsatisfactory feature of the 1939 version cannot be blamed on anyone else: the wide separation of Wimbledon station on the District Line from South Wimbledon on the Northern Line. Since the two lines are quite close to each other at this point, the divergence on the Diagram was misconceived and puzzling.

Going rectangular

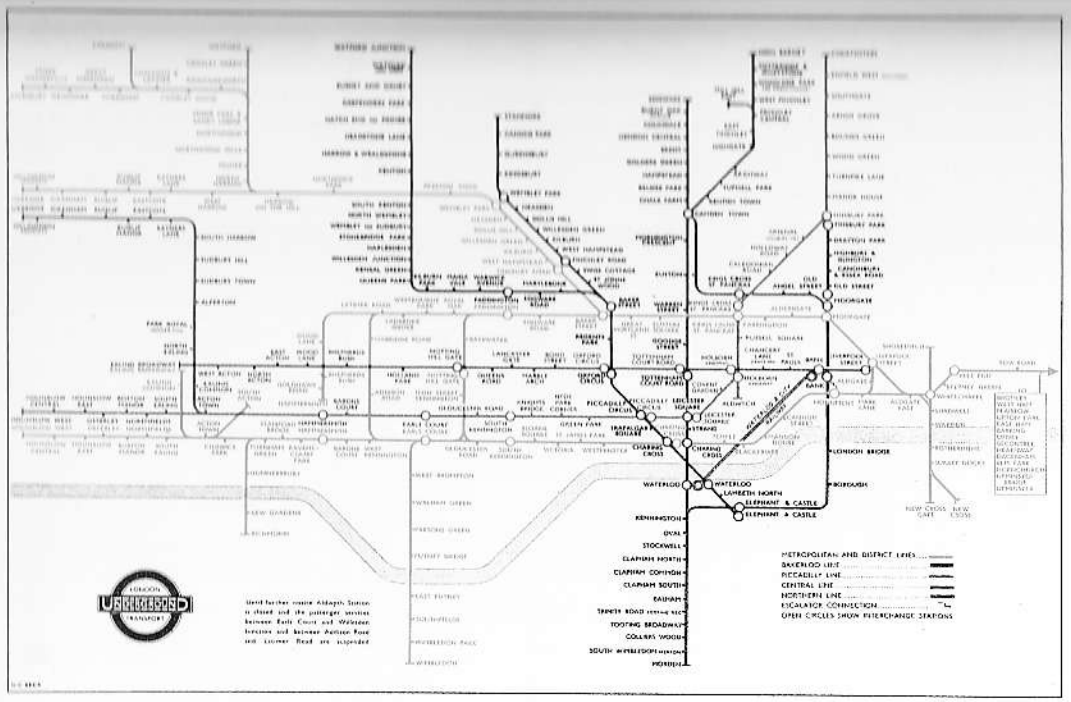
During 1940, and with the encouragement of Christian Barman (who remained Publicity Officer until 1941), Beck worked on a considerably revised design for the Diagram (**25**) which entailed reducing the diagonals to an absolute minimum. First published in January 1941, this version undoubtedly raised a few eyebrows at London Transport. The Diagram had now moved a long step further from on-the-ground, geographical reality. For Beck it was another stage in his search for simplicity and clarity (though he was still saddled, to his annoyance, with the duplication and triplication of many of the station names); to others, perhaps, it was a stage too far. But whatever reservations there might have been, they did not have any effect on the design from that time until Beck's last version of 1959: all Underground Diagrams during this period remained rectilinear in form.

25 A quad royal poster of 1941 (opposite). A much altered configuration, in which Beck reduced the diagonals to a minimum, and which set the style for the Diagram right up to Beck's last version of 1959. He was still very hampered by the duplication and triplication of many station names which had been imposed on him the previous year, and the District and Metropolitan Lines were still sharing the same route colour, against his better judgement; but still in other respects he seemed to have had his own way in progressing to an even more abstract form, in the belief that it would provide even greater clarity of information. Beginning with this version, and until 1946, all proposed extensions were omitted from the Diagram.


LONDON UNDERGROUND TRANSPORT
Until further notice Aldwych Station is closed and the passenger services between Earls Court and Willesden Junction and between Addison Road and Latimer Road are suspended
METROPOLITAN AND DISTRICT LINES
BAKERLOO LINE
PICCADILLY LINE
CENTRAL LINE
NORTHERN LINE
ESCALATOR CONNECTION
STATION
INTERCHANGE STATION
WATERLOO & CITY RAILWAY
CHESHAM
WATFORD
CHORLEY WOOD
AMERSHAM
WENDOVER
AYLESBURY
RICKMANSWORTH
CHALFONT & LATIMER
GREAT MISSENDEN
STOKE HAMMONDSTEAD
HOOR PARK & SANDY LODGE
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
HILLINGDON
RUISLIP
EASTCOTE
UXBRIDGE
ICKENHAM
RUISLIP MANOR
RAYNERS LANE
WEST HARROW
HARROW ON THE HILL
SOUTH HARROW
SUDBURY HILL
SUDBURY TOWN
ALPERTON
PARK ROYAL
NORTH EALING
EALING BROADWAY
EALING COMMON
WEST ACTON
NORTH ACTON
EAST ACTON
WOOD LANE
SHEPHERDS BUSH
ACTON TOWN
SOUTH ACTON
GOLDHAWK ROAD
HAMMERSMITH
BARONS COURT
HOUNSLOW CENTRAL
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
HOUNSLOW WEST
OSTERLEY
NORTHFIELDS
CHISWICK PARK
STAMFORD BROOK
TURNHAM GREEN
BAYENS-COURT PARK
GUNNERSBURY
KEW GARDENS
RICHMOND
WATFORD JUNCTION
BUSHEY AND OXHEY
CARPENDERS PARK
HATCH END for PINNER
HEADSTONE LANE
HARROW & WEALDSTONE
KENTON
SOUTH KENTON
NORTH WEMBLEY
WEMBLEY for SUDBURY
STONEBRIDGE PARK
HARLESDEN
WILLESDEN JUNCTION
KENSAL GREEN
QUEENS PARK
NORTHWICK PARK
PRESTON ROAD
WEMBLEY PARK
KILBURN PARK
MAIDA VALE
WARWICK AVENUE
WESTBOURNE PARK
ROYAL OAK
PADDINGTON
EDGWARE ROAD
LATIMER ROAD
LADBROKE GROVE
UXBRIDGE ROAD
BAYSWATER
NOTTING HILL GATE
HOLLAND PARK
ADDISON ROAD
HIGH STREET KENSINGTON
GLOUCESTER ROAD
SOUTH KENSINGTON
EARLS COURT
WEST KENSINGTON
WEST BROMPTON
WALHAM GREEN
PARSONS GREEN
PUTNEY BRIDGE
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHNS WOOD
MARYLEBONE
BAKER STREET
BOND STREET
LANCASTER GATE
QUEENS ROAD
MARBLE ARCH
OXFORD CIRCUS
REGENTS PARK
GREAT PORTLAND ST.
EUSTON SQUARE
GOODGE STREET
TOTTENHAM COURT ROAD
HYDE PARK CORNER
GREEN PARK
PICCADILLY CIRCUS
SLOANE SQUARE
ST. JAMES PARK
VICTORIA
WESTMINSTER
TRAFALGAR SQ.
CHARING CROSS
WATERLOO
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON
MORDEN
EDGWARE
BURNT OAK
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON
WARREN STREET
KINGS CROSS ST. PANCRAS
HIGH BARNET
TOTTERIDGE & WHETSTONE
WOODSIDE PARK
MILL HILL EAST
WEST FINCHLEY
FINCHLEY CENTRAL
EAST FINCHLEY
HIGHGATE
ARCHWAY
TUFNELL PARK
KENTISH TOWN
ARSENAL
HOLLOWAY ROAD
CALEDONIAN ROAD
ANGEL
OLD STREET
ALDERSGATE
FARRINGDON
RUSSELL SQUARE
CHANCERY LANE
ST. PAULS
BANK
HOLBORN
COVENT GARDEN
ALDWYCH
LEICESTER SQUARE
STRAND
TEMPLE
MANSION HOUSE
CANNON STREET
BLACKFRIARS
COCKFOSTERS
ENFIELD WEST
SOUTHGATE
ARNOS GROVE
BOUNDS GREEN
WOOD GREEN
TURNPIKE LANE
MANOR HOUSE
FINSBURY PARK
DRAYTON PARK
HIGHBURY & ISLINGTON
CANONBURY & ESSEX ROAD
MOORGATE
LIVERPOOL STREET
SHOREDITCH
ALDGATE
STEPNEY GREEN
BOW ROAD
MONUMENT
MARK LANE
ALDGATE EAST
WHITECHAPEL
MILE END
SHADWELL
WAPPING
ROTHERHITHE
SURREY DOCKS
NEW CROSS GATE
NEW CROSS
LONDON BRIDGE
BOROUGH
ELEPHANT & CASTLE
LAMBETH NORTH
BROMLEY
WEST HAM
PLAISTOW
UPTON PARK
EAST HAM
BARKING
UPNEY
BECONTREE
HEATHWAY
DAGENHAM
ELM PARK
HORNCHURCH
UPMINSTER BRIDGE
UPMINSTER
GRAYS
TILBURY
SOUTHEND
H.C. BECK
WATERLOW & SONS LTD. LONDON & GUILDFORD



26 A double royal poster of 1944. Although the quad royal posters were the normal format for the general display of the Diagram, other formats were often employed, as in this instance, where the Diagram was used to show Underground routes to and from the main line stations. Here Beck adapted the design to fit a square space at the top of the poster, allowing a lesser space below for specific information in tabular form, linked to the Diagram by coloured rectangles with the main line stations in white lettering inside them. The northern extremities of the lines are shown on the Diagram but those terminating to the east, west and south are not shown in full. One would have thought that, in theory, the use of a colour code for these rectangles would conflict with the colour coding of the tube lines, but it appears not to be so, though only a user test could confirm this. An effective demonstration by Beck of the Diagram's flexibility.



27 Card folder No 1 1945, showing (a) how little the design changed since 1941, and (b) the fine adjustments necessary to accommodate the station names in the card folders as compared with the quad royal posters, 23. In the former category only one design change has been spotted: the Metropolitan Line branch terminating at Hammersmith rated an interchange ring in 1941 whereas from 1943 it had been relegated to a terminal 'tick' (but note that by 1946, 28, it had once again become an interchange station). The showing of interchanges at places where stations are not adjacent caused much debate within the organisation over the years. There were many minor adjustments to the positioning of station names; for example, in the card folder the station names Gloucester Road, Leicester Square and Monument had to straddle route lines – always a matter of regret to Beck since it broke the flow he was so keen to preserve – whereas this was not necessary in the quad royal posters. There were also a number of re-groupings of interchange stations (note especially Charing Cross), presumably also because of the difficulty of squeezing duplicated and triplicated station names into so small a compass.

The proposed extensions of the Central and Northern Lines were delayed during the war years, and were not shown on the wartime Diagrams after 1941 (**27**). This was the most stable period in its evolution. The Central Line now formed a true axis as a straight horizontal running from Ealing Broadway in the west to Liverpool Street in the east.

1946 brought back the proposed extensions (**28**). These had to be incorporated within the rectilinear Diagram for the first time, providing Beck with a welcome challenge. At the same time, to his great joy, he was allowed to get rid of the nonsensical duplication and triplication of station names which had bedevilled the Diagram since the fateful version of 1939. Most significantly, the 'white-line connector' referred to earlier (see p 13), first seen in a map dated 1909, was reintroduced with great effect to denote all interchange stations (**29**). Beck's use of this device was so assured that, in effect, he made it his own; certainly, it was never better employed than it was by him.

There was a confidence in his handling of the Diagram during this period that suggests Beck was being given a relatively free hand; but we have two pieces of evidence which indicate this was not so. One is a copy of a memo from him to H T Carr, Acting Publicity Officer, dated 3rd July 1946:

May I draw attention to the fact that alterations have been made to the underground diagram map without reference to me.

When at a meeting in November 1937 I agreed to transfer the copyright of the design to London Transport it was promised as a condition that all alterations were to be made or edited by me, and that I was to be given a fee and treated as an outside artist.

In June, 1938 I had occasion to protest that this condition was not being observed... but since that time, as far as I am aware, I have had no reason to complain, except in the case of maps now exhibited or in preparation.

We cannot know at this remove what 'alterations' were being referred to in the memo. However, there is another piece of evidence that demonstrates an effort by others to add their two-pennorth: a quad royal poster (**29**) dated August 1946 which has been garnished with a gaudy border and a decorative heading. Though Beck's name was still in the bottom left-hand corner, he had to share a credit with 'Shep', whose name appeared on the right-hand corner of the border itself. While not intended to do so, the effect of this ostentatious border was to upstage the Diagram itself. But, though irritating, it was unlikely to have been the cause of Beck's complaint. After some prodding, he had the following response from Carr, in a memo dated 12th July, 1946:

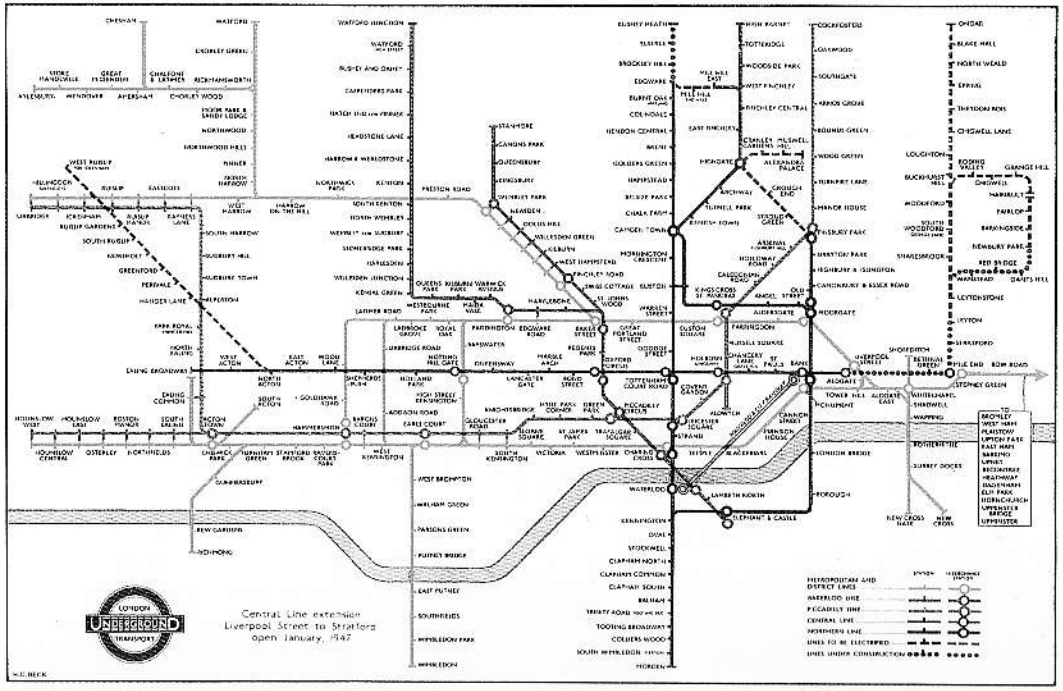
Underground Beck Diagram

Confirming interview this afternoon, as mentioned, I shall be only too pleased to consider any improvements which may occur to you from time to time in connection with the diagrammatic map we now have exhibited on our stations, and should they be accepted pay you an adequate sum.

Further, it is understood that if you, in your own time, can carry out any alterations which we desire, such work shall be paid for at commercial rates.

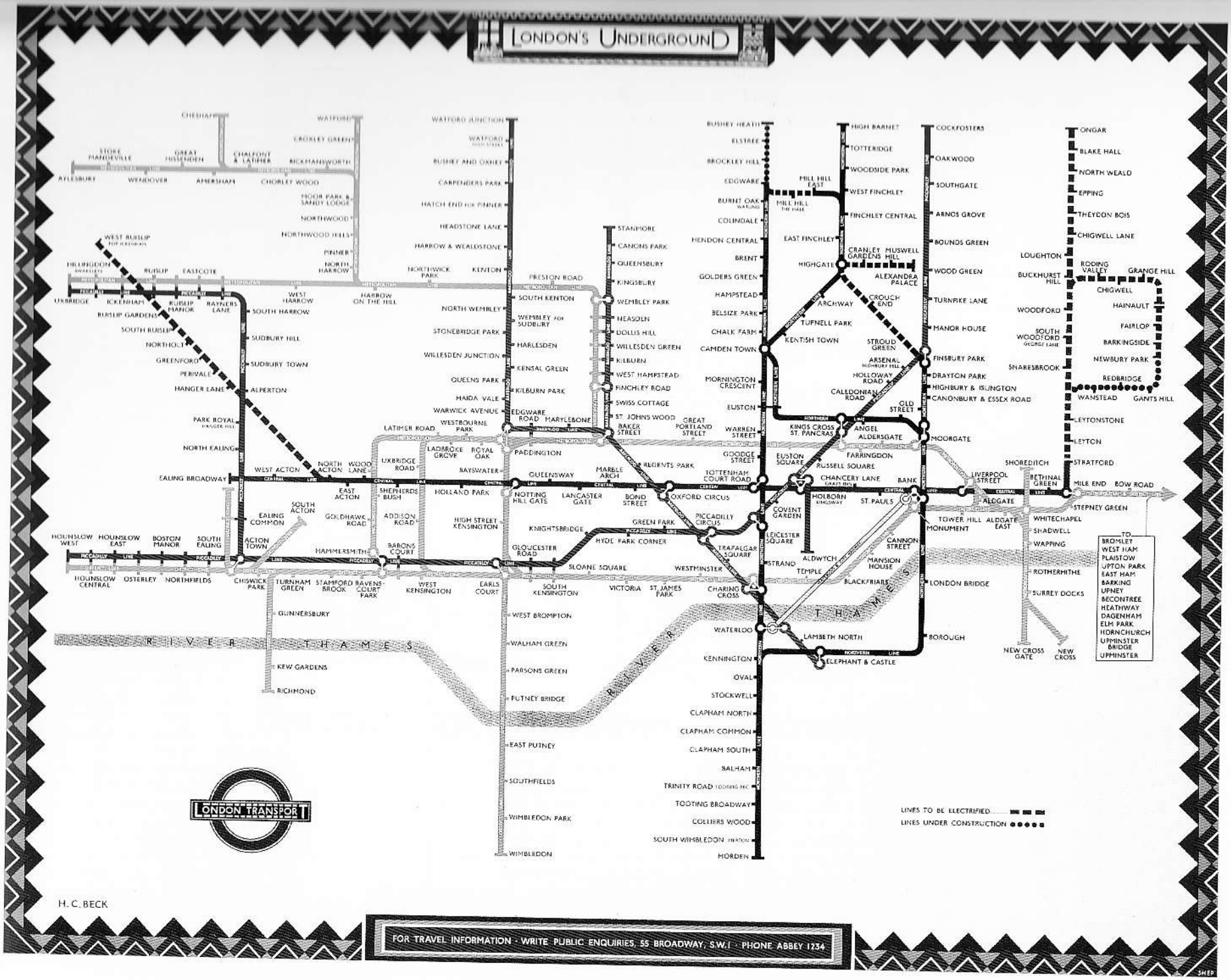
As with the earlier exchange of memos with Christian Barman in 1938, there is a notable caginess in regard to Beck's claim that he had a promise that 'all alterations were to be made or edited by me'. There is no acknowledgement of the validity of the promise, nor any guarantee that Beck would be solely responsible for future versions of the Diagram. At the time, he would probably have been no more than mildly annoyed at this omission. If he saw a potential problem it would have appeared as a cloud no bigger than a man's hand.

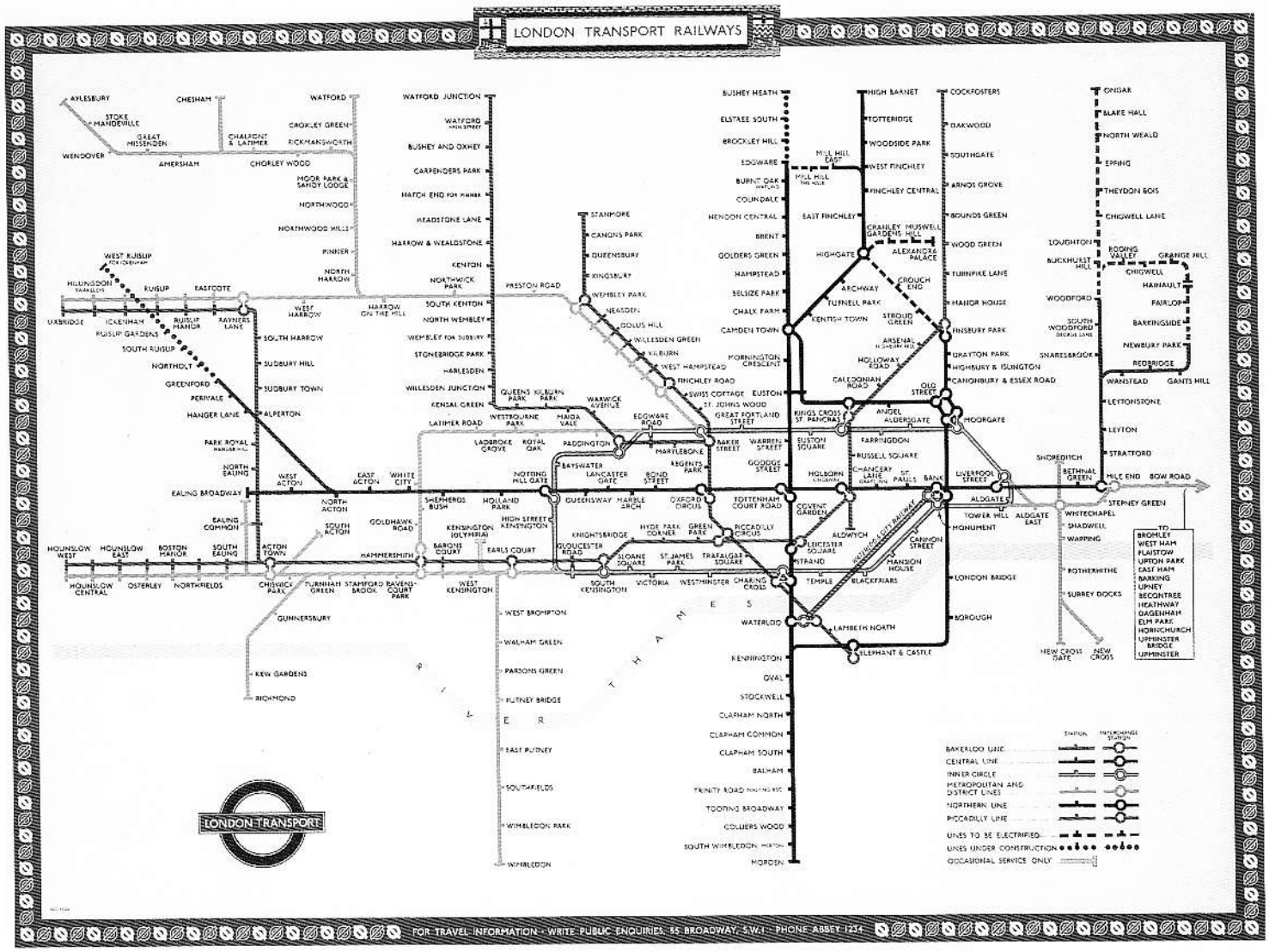
A new device appeared in 1947 (**30**), though it represented a long-established feature of the system itself: a distinctive outlining of the Inner Circle — not a separate line but part of



28 Card folder of January 1946. There were three significant changes: the abandonment of self-colours for the station names in favour of black printing (previously introduced for the quad royal poster of 1937 but not on card folders); the abolition of the futile and disruptive practice of duplicating and triplicating many station names; and the restoration of 'Lines to be electrified' and 'Lines under construction' on the Central and Northern Lines, indicated by broken lines and dotted lines respectively.

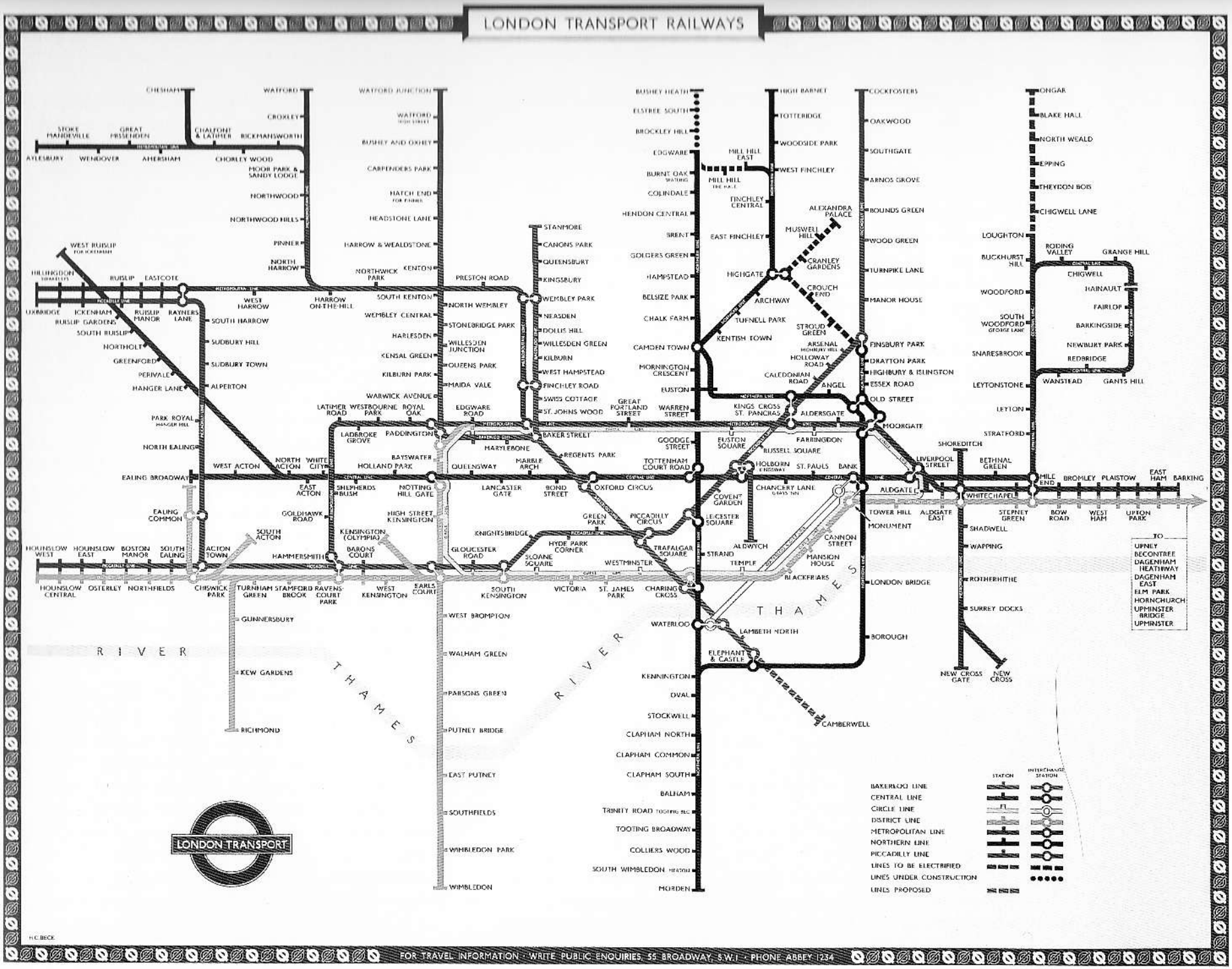
29 Quad royal poster of August 1946 (right). Both poster and folder of the same year are shown here for comparison. Note that (a) the poster used thickened lines to enable the inclusion of route names within them, a device not feasible in the card folder; (b) uniquely, a garish, inappropriate border had been drawn by the designer Captain Shepherd and signed with his pen-name 'Shep' in the bottom righthand corner, to balance Beck's own signature in its usual place in the bottom lefthand corner; (c) there was one more step in the 'rectification' process, whereby the parallel stretch of the Metropolitan and Bakerloo Lines from Baker Street to Wembley Park, a diagonal in the card folder, became a vertical in the poster; and (d) Beck introduced, to great effect, the 'white-line connector' for interchange stations, borrowed from some Underground maps of 1909-12 (see p 13) but never better used than in this revival.


LONDON'S UNDERGROUND
CHESHAM
WATFORD
CROXLEY GREEN
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
MOOR PARK & SANDY LODGE
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
WEST RUISLIP
HILLINGDON
RUISLIP
EASTCOTE
UXBRIDGE
ICKENHAM
RUISLIP MANOR
RAYNERS LANE
RUISLIP GARDENS
SOUTH RUISLIP
NORTHOLT
GREENFORD
PERIVALE
HANGER LANE
PARK ROYAL
NORTH EALING
EALING BROADWAY
WEST HARROW
HARROW ON THE HILL
SOUTH HARROW
SUDBURY HILL
SUDBURY TOWN
ALPERTON
WEST ACTON
NORTH ACTON
WOOD LANE
EAST ACTON
SOUTH ACTON
EALING COMMON
ACTON TOWN
HOUNSLOW WEST
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
HOUNSLOW CENTRAL
OSTERLEY
NORTHFIELDS
CHISWICK PARK
TURNHAM GREEN
STAMFORD BROOK
RAVENS COURT PARK
GUNNERSBURY
KEW GARDENS
RICHMOND
WATFORD JUNCTION
WATFORD
BUSHEY AND OXHEY
CARPENDERS PARK
HATCH END FOR PINNER
HEADSTONE LANE
HARROW & WEALDSTONE
NORTHWICK PARK
KENTON
SOUTH KENTON
NORTH WEMBLEY
WEMBLEY FOR SUDBURY
STONEBRIDGE PARK
HARLESDEN
WILLESDEN JUNCTION
KENSAL GREEN
QUEENS PARK
KILBURN PARK
HAIDA VALE
WARWICK AVENUE
EDGWARE ROAD
PRESTON ROAD
LATIMER ROAD
WESTBOURNE PARK
LADBROKE GROVE
ROYAL OAK
PADDINGTON
UXBRIDGE ROAD
BAYSWATER
GOLDHAWK ROAD
ADDISON ROAD
HOLLAND PARK
HIGH STREET KENSINGTON
BARONS COURT
HAMMERSMITH
GLOUCESTER ROAD
KNIGHTSBRIDGE
SLOANE SQUARE
SOUTH KENSINGTON
EARLS COURT
WEST KENSINGTON
VICTORIA
ST. JAMES PARK
WEST BROMPTON
WALHAM GREEN
PARSONS GREEN
FULHAM BRIDGE
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST JOHN'S WOOD
BAKER STREET
MARYLEBONE
GREAT PORTLAND STREET
REGENTS PARK
MARBLE ARCH
QUEENSWAY
NOTTING HILL GATE
LANCASTER GATE
BOND STREET
OXFORD CIRCUS
GREEN PARK
PICCADILLY CIRCUS
HYDE PARK CORNER
TRAFALGAR SQUARE
WESTMINSTER
CHARING CROSS
BUSHEY HEATH
ELSTREE
BROCKLEY HILL
EDGWARE
BURNT OAK
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON
WARREN STREET
GOODGE STREET
TOTTENHAM COURT ROAD
COVENT GARDEN
LEICESTER SQUARE
STRAND
ALDWYCH
TEMPLE
WATERLOO
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON
MORDEN
MILL HILL EAST
MILL HILL
HIGH BARNET
TOTTERIDGE
WOODSIDE PARK
WEST FINCHLEY
FINCHLEY CENTRAL
EAST FINCHLEY
HIGHGATE
CRANLEY GARDENS
MUSWELL HILL
ALEXANDRA PALACE
ARCHWAY
CROUCH END
TUFNELL PARK
KENTISH TOWN
STROUD GREEN
ARSENAL
HOLLOWAY ROAD
CALEDONIAN ROAD
KINGS CROSS ST. PANCRAS
ANGEL
ALDERSGATE
OLD STREET
MOORGATE
EUSTON SQUARE
FARRINGDON
RUSSELL SQUARE
CHANCERY LANE
HOLBORN
ST. PAULS
BANK
MONUMENT
TOWER HILL
CANNON STREET
MANSION HOUSE
BLACKFRIARS
LONDON BRIDGE
BOROUGH
LAMBETH NORTH
ELEPHANT & CASTLE
COCKFOSTERS
OAKWOOD
SOUTHGATE
ARNOS GROVE
BOUNDS GREEN
WOOD GREEN
TURNPIKE LANE
MANOR HOUSE
FINSBURY PARK
DRAYTON PARK
HIGHBURY & ISLINGTON
CANONBURY & ESSEX ROAD
ONGAR
BLAKE HALL
NORTH WEALD
EPPING
THEYDON BOIS
CHIGWELL LANE
LOUGHTON
BUCKHURST HILL
RODING VALLEY
GRANGE HILL
CHIGWELL
HAINAULT
WOODFORD
FAIRLOP
SOUTH WOODFORD
BARKINGSIDE
SNAKESBROOK
NEWBURY PARK
REDBRIDGE
WANSTEAD
GANTS HILL
LEYTONSTONE
LEYTON
STRATFORD
SHOREDITCH
LIVERPOOL STREET
BETHNAL GREEN
MILE END
BOW ROAD
ALDGATE
ALDGATE EAST
STEPNEY GREEN
WHITECHAPEL
SHADWELL
WAPPING
ROTHERHITHE
SURREY DOCKS
NEW CROSS GATE
NEW CROSS
TO
BROMLEY
WEST HAM
PLAISTOW
UPTON PARK
EAST HAM
BARKING
UPNEY
BECONTREE
HEATHWAY
DAGENHAM
ELM PARK
HORNCHURCH
UPMINSTER BRIDGE
UPMINSTER
RIVER THAMES
LONDON TRANSPORT
LINES TO BE ELECTRIFIED
LINES UNDER CONSTRUCTION
H. C. BECK
FOR TRAVEL INFORMATION · WRITE PUBLIC ENQUIRIES, 55 BROADWAY, S.W.1 · PHONE ABBEY 1234



30 Quad foolscap (27 x 34in/686 x 863mm) poster of 1947. A significant, if unsensational, innovation appeared in this edition: the outlining of those parts of the District and Metropolitan Lines which constituted the Inner Circle – not a separately acknowledged line at this time but now identified on the Diagram for the first time. The thickened route lines with their names shown in white within them, seen on the 1946 quad royal poster, were not used here; nor was the 'rectification' of the stretch of the Metropolitan and Bakerloo Lines between Baker Street and Wembley Park, which remained a diagonal here.

31 Quad royal poster of 1949 (right). Beck considered this perhaps the best of all his versions of the Diagram. The Metropolitan and District Lines were now shown in different colours, the Metropolitan reverting to purple while the District remained green. The Inner Circle had been renamed the Circle Line and given its own colour – yellow – while retaining the black outline on its inner edge which had been introduced in 1947. This was not, of course, a truly separate line, being serviced jointly by the Metropolitan and District. The Central Line was now completed to West Ruislip in the west and as far as Loughton in the east. There was a reorientation of lines around Baker Street and Paddington, where the Bakerloo Line slipped inside those two stations (though this did not survive the next edition). A proposed extension of the Bakerloo Line from Elephant & Castle to Camberwell was included for the first time and rings with white-line connectors were added at Rayners Lane (Metropolitan/Piccadilly), at Ealing Common (District/Piccadilly) and at South Kensington (District/Piccadilly). The eastward route of the Metropolitan and District Lines was now drawn as far as Barking, where previously it had only been drawn to Bow Road.


LONDON TRANSPORT RAILWAYS
CHESHAM
WATFORD
WATFORD JUNCTION
CROXLEY
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
MOOR PARK & SANDY LODGE
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
WEST RUISLIP
HILLINGDON
RUISLIP
EASTCOTE
UXBRIDGE
ICKENHAM
RUISLIP MANOR
RAYNERS LANE
RUISLIP GARDENS
SOUTH RUISLIP
NORTHOLT
GREENFORD
PERIVALE
HANGER LANE
ALPERTON
WEST HARROW
HARROW ON-THE-HILL
SOUTH HARROW
SUDBURY HILL
SUDBURY TOWN
PARK ROYAL
NORTH EALING
EALING BROADWAY
EALING COMMON
WEST ACTON
NORTH ACTON
EAST ACTON
WHITE CITY
SHEPHERDS BUSH
GOLDHAWK ROAD
SOUTH ACTON
ACTON TOWN
HOUNSLOW WEST
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
HOUNSLOW CENTRAL
OSTERLEY
NORTHFIELDS
CHISWICK PARK
TURNHAM GREEN
STAMFORD BROOK
RAVENSCOURT PARK
GUNNERSBURY
KEW GARDENS
RICHMOND
WATFORD JUNCTION
BUSHEY AND OXHEY
CARPENDERS PARK
HATCH END
HEADSTONE LANE
HARROW & WEALDSTONE
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KENSAL GREEN
KILBURN PARK
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LATIMER ROAD
WESTBOURNE PARK
ROYAL OAK
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PADDINGTON
BAYSWATER
HOLLAND PARK
NOTTING HILL GATE
HAMMERSMITH
BARONS COURT
KENSINGTON (OLYMPIA)
HIGH STREET KENSINGTON
EARLS COURT
WEST KENSINGTON
PRESTON ROAD
NORTH WEMBLEY
STONEBRIDGE PARK
WILLESDEN JUNCTION
QUEENS PARK
MAIDA VALE
EDGWARE ROAD
QUEENSWAY
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GLOUCESTER ROAD
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WEST BROMPTON
WALHAM GREEN
PARSONS GREEN
PUTNEY BRIDGE
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SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHNS WOOD
MARYLEBONE
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REGENTS PARK
OXFORD CIRCUS
BOND STREET
KNIGHTSBRIDGE
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VICTORIA
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GREEN PARK
PICCADILLY CIRCUS
TRAFALGAR SQUARE
WESTMINSTER
CHARING CROSS
WATERLOO
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TRINITY ROAD
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COLLIERS WOOD
SOUTH WIMBLEDON
MORDEN
BUSHEY HEATH
ELSTREE SOUTH
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BURNT OAK
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HENDON CENTRAL
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GOLDERS GREEN
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BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON
KINGS CROSS ST. PANCRAS
GREAT PORTLAND STREET
WARREN STREET
GOODGE STREET
TOTTENHAM COURT ROAD
HOLBORN
ST. PAULS
BANK
CHANCERY LANE
COVENT GARDEN
LEICESTER SQUARE
ALDWYCH
STRAND
TEMPLE
BLACKFRIARS
LAMBETH NORTH
ELEPHANT & CASTLE
CAMBERWELL
HIGH BARNET
TOTTERIDGE
WOODSIDE PARK
WEST FINCHLEY
MILL HILL EAST
MILL HILL
FINCHLEY CENTRAL
EAST FINCHLEY
HIGHGATE
ARCHWAY
TUFNELL PARK
KENTISH TOWN
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MUSWELL HILL
CRANLEY GARDENS
CROUCH END
STROUD GREEN
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HOLLOWAY ROAD
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RUSSELL SQUARE
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ALDERSGATE
MOORGATE
COCKFOSTERS
OAKWOOD
SOUTHGATE
ARNOS GROVE
BOUNDS GREEN
WOOD GREEN
TURNPIKE LANE
MANOR HOUSE
FINSBURY PARK
DRAYTON PARK
HIGHBURY & ISLINGTON
ESSEX ROAD
OLD STREET
LIVERPOOL STREET
ALDGATE
TOWER HILL
MONUMENT
ALDGATE EAST
CANNON STREET
MANSION HOUSE
LONDON BRIDGE
BOROUGH
NEW CROSS GATE
NEW CROSS
SHOREDITCH
WHITECHAPEL
SHADWELL
WAPPING
ROTHERHITHE
SURREY DOCKS
BETHNAL GREEN
STEPNEY GREEN
BOW ROAD
WEST HAM
UPTON PARK
MILE END
BROMLEY
PLAISTOW
EAST HAM
BARKING
ONGAR
BLAKE HALL
NORTH WEALD
EPPING
THEYDON BOIS
CHIGWELL LANE
LOUGHTON
BUCKHURST HILL
RODING VALLEY
GRANGE HILL
CHIGWELL
HAINAULT
FAIRLOP
BARKINGSIDE
NEWBURY PARK
REDBRIDGE
WANSTEAD
GANTS HILL
WOODFORD
SOUTH WOODFORD
SNARESBROOK
LEYTONSTONE
LEYTON
STRATFORD
TO
UPNEY
BECONTREE
DAGENHAM HEATHWAY
DAGENHAM EAST
ELM PARK
HORNCHURCH
UPMINSTER BRIDGE
UPMINSTER
RIVER THAMES
STATION
INTERCHANGE STATION
BAKERLOO LINE
CENTRAL LINE
CIRCLE LINE
DISTRICT LINE
METROPOLITAN LINE
NORTHERN LINE
PICCADILLY LINE
LINES TO BE ELECTRIFIED
LINES UNDER CONSTRUCTION
LINES PROPOSED
LONDON TRANSPORT
H.C.BECK
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the District and Metropolitan Lines (both of which, incidentally, had been shown as green since 1937*) — that delineated it clearly for the first time, by means of a black outline round the green.

In 1947 Beck was tempted by the offer of a teaching post at the London School of Printing and Kindred Trades, soon to be amalgamated with the LCC School of Photo-engraving and Lithography and renamed the London School of Printing and the Graphic Arts. His job at London Transport held no great prospect of advancement, congenial though it was, and he resigned in order to join the staff of the School. The subjects he was called on to teach were the theory and practice of typographic design, colour theory, the history of type design, lettering and general drawing.

This was a period of new thinking in graphic design in Britain (the very term itself only came into general use at this time). The painter William Johnstone, having made a great success as principal of Camberwell School of Art & Craft, had just been appointed to the same role at the Central School of Arts & Crafts, which had not had a full time principal since the outbreak of World War 2. He brought with him graphic designer Jesse Collins as head of the Department of Book Design and Production, who in his turn recruited as teachers Anthony Froshaug† and Herbert Spencer. Both of them were great enthusiasts for a subject which became known much later as 'information design'; and their often quoted paradigm in this area was the Underground Diagram. Meanwhile, in this same year, Robin Darwin was appointed principal of the Royal College of Art and Design and set about revitalising it with special reference to its original purpose of training designers for industry; one of his key appointments was that of Richard Guyatt as head of the School of Graphic Arts. As a practising graphic designer, Guyatt, too, was concerned to promote a more purposeful, less dilettante approach to graphic design.

Beck became aware, perhaps for the first time, of the ramifications of this subject. As the likes of Collins, Froshaug, Spencer and Guyatt were making the connection between the pictorial aspects of the graphic arts and the more down-to-earth concerns represented by the Diagram, so was he. Meanwhile, he was as absorbed as ever with the more or less continuous task of updating and improving it. The Becks' whole house would be strewn with the clutter of work in progress, even the bedroom: Nora, his wife, would find little piles of sketches under his pillow when she made the bed in the morning. And his niece, Joan Baker, recalls seeing very large copies of the Diagram covering the living room carpet as he crawled over them making amendments.

It is difficult to avoid the analogy of this ongoing involvement with the Diagram being equivalent to that of a father for his favourite child — escaping from his firm control from time to time by someone else's unlooked-for influence but always returning to the guidance of his firm hand.

By the 1949 edition (**31**) some crucial modifications had been made: the Inner Circle, now known as the Circle Line, was shown as a separate route line in yellow, strengthened with a black outline on its inner edge; the Metropolitan Line had its distinctive purple restored to it once more; the route lines were thickened to include (on the posters, that is) the names of the routes in white within them with the effect of making the whole Diagram bolder and more colourful.

Beck told the writer he considered this to be perhaps the best of all his versions of the Diagram, and it is not difficult to see why he thought so. With this design he had managed at last to eradicate all those features with which he had been unwillingly saddled by others — with the single exception of the thickened route lines, though he had become reconciled to them by now. He had incorporated a most welcome touch of yellow for the Circle Line; and he had achieved at last the degree of rectilinearity he believed appropriate to the Diagram as he had always conceived it. The one important omission was that he had not found a suitable way to incorporate the stretch of the District Line eastward from Barking to its terminus at Upminster.

Editions from 1951, such as the one illustrated (**32**), were of simpler design, by virtue of the omission of the proposed Northern Line extensions from Finsbury Park, Mill Hill East and Edgware, and the Bakerloo Line extension from Elephant & Castle to Camberwell. Though this removed a few diagonal lines from the Diagram, which would have pleased Beck given his desire for rectilinearity, at the same time we find him reintroducing a diagonal where he had only recently contrived a vertical. The District Line branch from Turnham Green to Richmond had become a vertical

32 A quad royal poster of 1952 (opposite), virtually identical to the 1951 maps, in which the proposed northward extensions of the Northern Line had been omitted, as was the proposed extension of the Bakerloo Line from Elephant & Castle to Camberwell. Rings with white-line connectors were added at Gloucester Road (Piccadilly/District). The Richmond branch of the District Line reverted to a diagonal and a matching diagonal kink was built into the Thames so that the town now lay alongside the river. The most significant change was the introduction of a reference grid. Comprising 4 x 6 squares it was not overly intrusive.

* First seen on card folder No 2 of that year.

† Froshaug recommended Beck to the writer when the latter was his student in 1953, and this led to their first meeting.

LONDON TRANSPORT RAILWAYS

A B C D E F

1 2 3 4

CHESHAM
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
WATFORD
CROXLEY
MOOR PARK
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
WEST RUISLIP
HILLINGDON
RUISLIP
EASTCOTE
UXBRIDGE
ICKENHAM
RUISLIP MANOR
RAYNERS LANE
RUISLIP GARDENS
SOUTH RUISLIP
NORTHOLT
GREENFORD
PERIVALE
HANGER LANE
PARK ROYAL
NORTH EALING
EALING BROADWAY
EALING COMMON
WEST HARROW
HARROW ON THE HILL
SOUTH HARROW
SUDBURY HILL
SUDBURY TOWN
ALPERTON
WATFORD JUNCTION
WATFORD
BUSHEY AND OXHEY
CARPENDERS PARK
HATCH END
HEADSTONE LANE
HARROW & WEALDSTONE
KENTON
NORTHWICK PARK
SOUTH KENTON
WEMBLEY CENTRAL
HARLESDEN
KENSAL GREEN
KILBURN PARK
WARWICK AVENUE
LATIMER ROAD
WESTBOURNE PARK
ROYAL OAK
PRESTON ROAD
NORTH WEMBLEY
STONEBRIDGE PARK
WILLESDEN JUNCTION
QUEEN'S PARK
MAIDA VALE
EDGWARE ROAD
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHN'S WOOD
NORTH WHITE CITY
ACTON
LADBROKE GROVE
PADDINGTON
BAYSWATER
HOLLAND PARK
QUEENSWAY
MARYLEBONE
MARBLE ARCH
BAKER STREET
REGENT'S PARK
WEST ACTON
EAST ACTON
SHEPHERD'S BUSH
NOTTING HILL GATE
LANCASTER GATE
BOND STREET
OXFORD CIRCUS
GOLDHAWK ROAD
HIGH STREET KENSINGTON
KENSINGTON (OLYMPIA)
SOUTH ACTON
ACTON TOWN
HAMMERSMITH
BARONS COURT
GLOUCESTER ROAD
KNIGHTSBRIDGE
HYDE PARK CORNER
SLOANE SQUARE
GREEN PARK
PICCADILLY CIRCUS
TRAFALGAR SQUARE
WESTMINSTER
HOUNSLOW WEST
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
HOUNSLOW CENTRAL
OSTERLEY
NORTHFIELDS
CHISWICK PARK
GUNNERSBURY
TURNHAM GREEN
STAMFORD BROOK
RAVENS COURT PARK
WEST KENSINGTON
EARL'S COURT
SOUTH KENSINGTON
VICTORIA
ST. JAMES'S PARK
CHARING CROSS
KEW GARDENS
RICHMOND
RIVER THAMES
WEST BROMPTON
FULHAM BROADWAY
PARSONS GREEN
PUTNEY BRIDGE
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
EDGWARE
BURNT OAK
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
CAMDEN TOWN
MORNINGTON CRESCENT
EUSTON
WARREN STREET
GREAT PORTLAND STREET
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LEICESTER SQUARE
ALDWYCH
STRAND
TEMPLE
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ELEPHANT & CASTLE
KENNINGTON
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STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TOOTING BEC
TOOTING BROADWAY
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SOUTH WIMBLEDON
MORDEN
MILL HILL EAST
HIGH BARNET
TOTTERIDGE
WOODSIDE PARK
WEST FINCHLEY
FINCHLEY CENTRAL
EAST FINCHLEY
HIGHGATE
ARCHWAY
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ARSENAL
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DEBDEN
LOUGHTON
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RODING VALLEY
GRANGE HILL
CHIGWELL
HAINAULT
FAIRLOP
BARKINGSIDE
NEWBURY PARK
REDBRIDGE
WANSTEAD
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LEYTON
STRATFORD

TO
UPNEY
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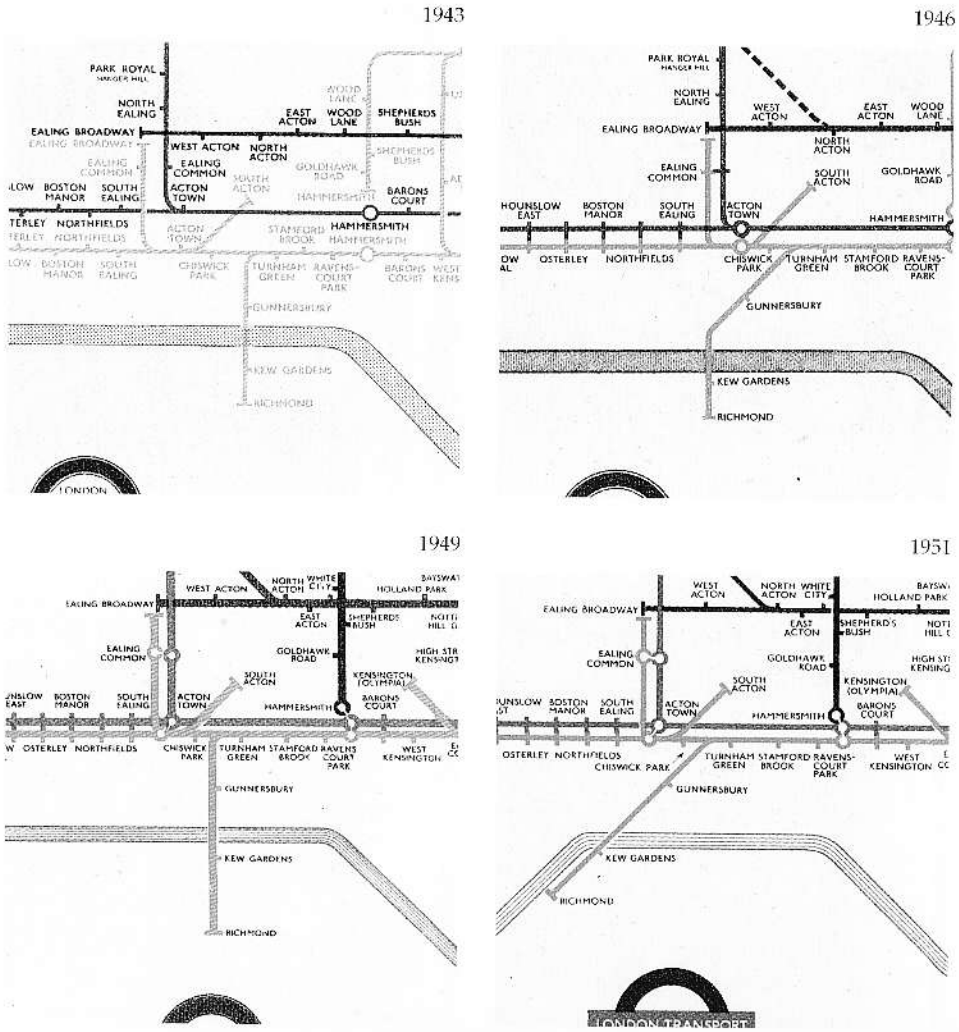
DARTFORD LINE · CENTRAL LINE · CIRCLE LINE · DISTRICT LINE · METROPOLITAN LINE · NORTHERN LINE · PICCADILLY LINE

Station · Interchange Station

H.C. HECK

FOR TRAVEL INFORMATION · WRITE TRAFFIC ENQUIRIES, 55 BROADWAY, S.W.1 · PHONE ABBEY 1234



33 Details to show the changing relationship of Richmond station and the River Thames over an eight year period. It was not until the 1951 version that Beck contrived to place Richmond station adjacent to the river, where it properly should have been, and indeed where it had been until 1943.

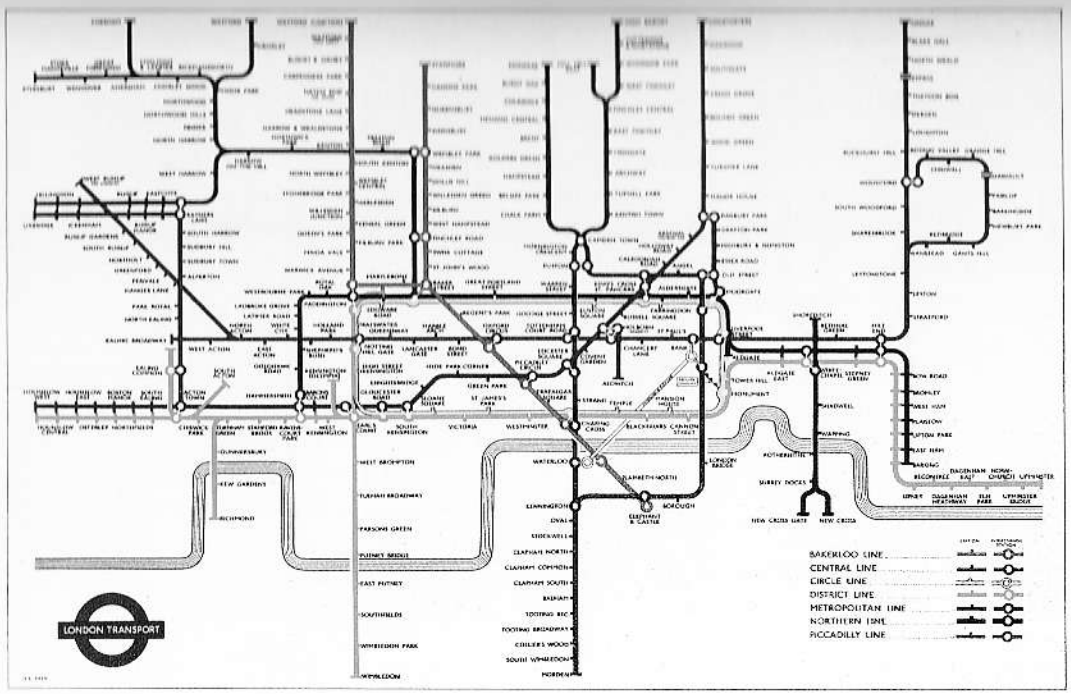
in 1943, had acquired a diagonal/vertical kink in 1946, and had once more become vertical in 1949; now it was once again a diagonal (**33**). This could have been under pressure from his bosses, who may have pointed out that Richmond was on the Thames, whereas his 1949 version implied it was some way to the south of the river. At any rate, he brought back a bend in the Thames, creating a diagonal which then matched the reinstated diagonal of the branch line. Richmond was once more restored to its rightful place.

However, such diagonal diversions were not to be put up with for very long. By 1954, Beck had 'rectified' the river itself: the Richmond branch could now revert to a vertical and lie alongside the river (**34**). More significantly, he had eliminated the diagonals on the eastern side of the Inner Circle, turning it into a clean rectangle with rounded corners. And most importantly of all, he had found a way, by means of the two right-angle bends in the route line, of incorporating the whole eastward extent of the District Line as far as Upminster, though he was not entirely happy with this solution since it conveyed the idea that Upminster is close to the Thames, whereas it is some six miles to the north.

There was another change in the 1954 design which is easy to overlook but which Beck considered substantial. He had always felt that, where a line branches, there should be a way of showing the branching that does not imply one arm is more important than the other. Now, in the case of the branches on the Northern Line north of Camden Town, on the Metropolitan Line west of Harrow-on-the-Hill, and a number of smaller instances, he had been able to achieve this; and incidentally, where the Metropolitan Line branches south of Surrey Docks, to New Cross Gate and New Cross, he managed to remove another diagonal into the bargain.

Gratuitous grid?

The introduction of a locating grid, tentatively at first, with a 24 square version in the 1951 and 1952 (**32**) poster editions, then with a much more noticeable 176 square version in the 1955 editions of both poster and card folder, was a mixed blessing. For those who did not want to use it for locating a station it was mere noise; and of course it required a large, space-devouring key panel on the poster. Beck was always in two minds about it. He couldn't deny its usefulness, and in fact he had seriously considered advocating its use when



34 Card folder of 1954. With this edition Beck revised the design extensively to accommodate four new features: the 'rectification' of the River Thames; the simplification of the Circle Line from an irregular polygon to a clean rectangle; a treatment of the branching points of many lines to give each of those branches equal importance; and the appreciable thickening of the route lines. The rectilinear transformation of the river line, which had until then been a combination of horizontals and diagonals, was questionable. It did not assist Beck's quest for increasing rectilinearity in the route lines themselves except in the single case of the Richmond branch of the District Line which could now be a vertical and could also lie alongside the river (see **33**), and to some eyes it looked too utterly mechanical for such a natural feature. The simplified configuration of the Circle Line was a decided improvement, though Beck said later that he preferred Garbutt's 'vacuum flask' shape for this feature (see **42**). The branching treatment had a significant effect on the general appearance of the Diagram, not least in that it disrupted the straight line between Edgware and Morden on the Northern Line: a carefully contrived vertical axis Beck had introduced in 1943 to match the horizontal axis of the Central Line which had been a key feature of the Diagram from the beginning. The reason for the thickening of the route lines is not immediately apparent from the card folder version, for the simple reason that it related to the re-introduction of the names of the lines in white lettering within them on the quad royal poster of the same year (see **35**). It could be argued that there was no need for the route lines on the card folder to be thickened just to match those on the poster, and that it would have been preferable to retain the greater elegance of the previous edition.

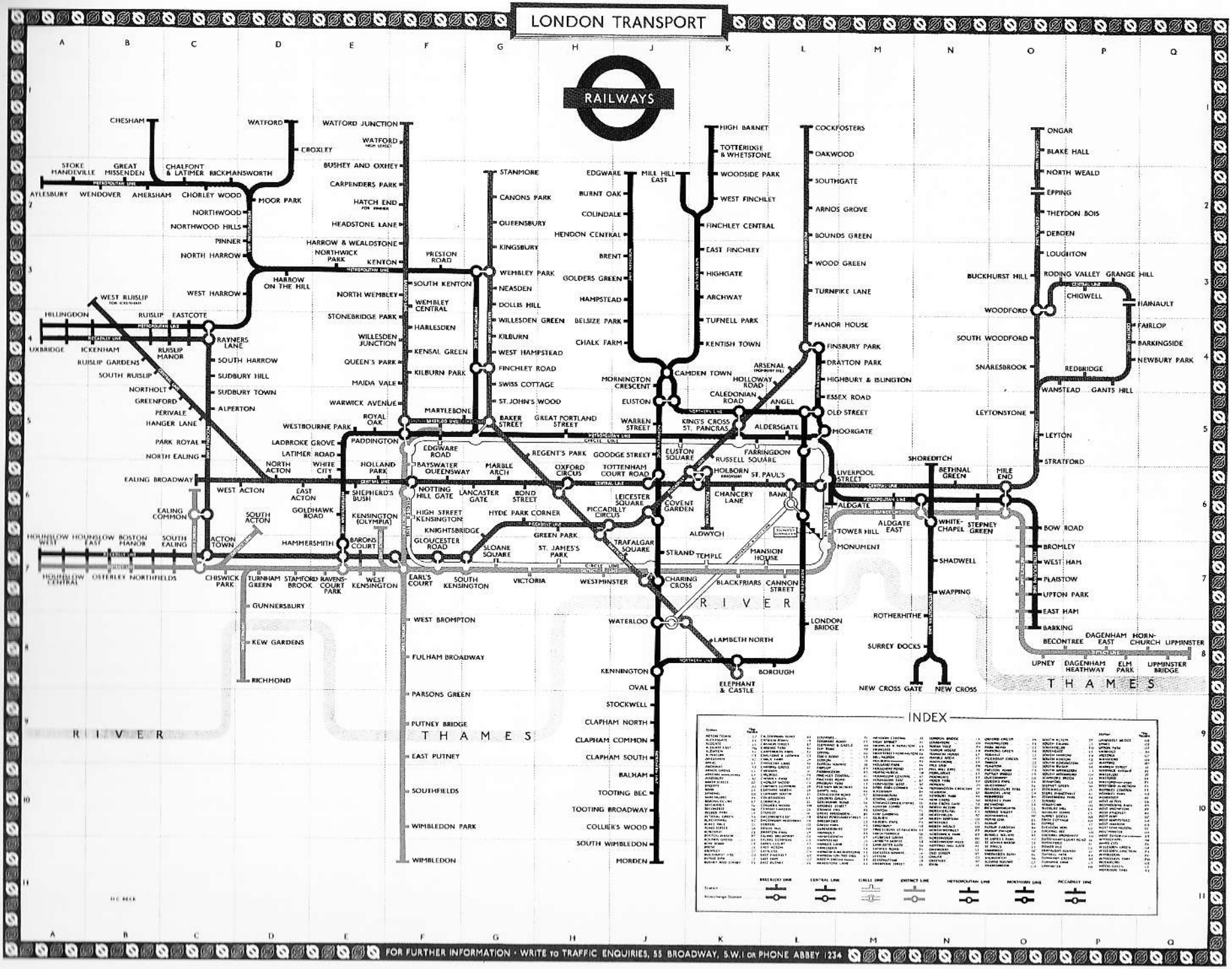
it was suggested to him by his father in 1933, but had resisted it for 20 years because he feared it would interrupt the clean flow of the route lines. Having concurred in the introduction of a 4 x 6 co-ordinate grid in 1951, he could not reasonably claim, on that evidence, that it was intrusive; but in 1955 he found he was implementing a more complex, 11 x 16, grid. Such a profusion of reference squares was both unnecessary and intrusive, especially in the card folders (and it is worth remarking that, between 1984 and 1988, the grid was progressively simplified to a 6 x 9 co-ordinate without any appreciable loss of usefulness and with a considerable improvement in appearance).

Beck was stuck with the over-elaborate reference grid throughout his remaining years of designing the Diagram. Though its inclusion was made with his full agreement, he confessed to the writer later that he wished he had resisted it, especially in relation to the more cluttered format of the card folder where, in any case, the user had to turn from front to back in order to relate the grid to the alphabetic list of stations. To compound the difficulty, the type size of the list was so small that it was very hard to read, especially in less than ideal lighting conditions.

Consolidation

From 1955 to 1959 (**35**, **36**, **37**), the year of Beck's last design* (**38**), the Diagram changed very little. However, he had completely redrawn it: all the curves in the route lines were tighter, though this is apparent only to the most sharp-eyed observer. No convincing reason can be adduced for this alteration and the writer is completely at a loss to understand its motivation, particularly in view of the many hours of handwork it must have entailed. Other minor changes were: the deletion of the South Acton branch on the District Line; the re-lettering of the escalator connection operating between Monument and Bank stations, probably because in the 1955 version it was too small to be readable; and the identification by lettering of the River Thames — the first time Beck had thought this necessary in the card folder version of the Diagram, though it had been included as a matter of course in the quad royal posters.

* Strictly speaking, the date on the last published version – a card folder – was March 1960.


LONDON TRANSPORT
RAILWAYS
CHESHAM
WATFORD
CROXLEY
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
MOOR PARK
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
HARROW ON THE HILL
WEST HARROW
WATFORD JUNCTION
WATFORD
BUSHEY AND OXHEY
CARPENDERS PARK
HATCH END
HEADSTONE LANE
HARROW & WEALDSTONE
NORTHWICK PARK
KENTON
PRESTON ROAD
SOUTH KENTON
NORTH WEMBLEY
WEMBLEY CENTRAL
STONEBRIDGE PARK
HARLESDEN
WILLESDEN JUNCTION
KENSAL GREEN
QUEEN'S PARK
KILBURN PARK
MAIDA VALE
WARWICK AVENUE
ROYAL OAK
MARYLEBONE
WESTBOURNE PARK
PADDINGTON
LADBROKE GROVE
LATIMER ROAD
NORTH ACTON
WHITE CITY
HOLLAND PARK
EDGWARE ROAD
BAYSWATER
QUEENSWAY
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NOTTING HILL GATE
LANCASTER GATE
BOND STREET
HIGH STREET KENSINGTON
HYDE PARK CORNER
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HANGER LANE
PARK ROYAL
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EALING BROADWAY
WEST ACTON
EAST ACTON
SHEPHERD'S BUSH
KENSINGTON (OLYMPIA)
EALING COMMON
SOUTH ACTON
GOLDHAWK ROAD
HOUNSLOW WEST
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
ACTON TOWN
HAMMERSMITH
BARONS COURT
HOUNSLOW CENTRAL
OSTERLEY
NORTHFIELDS
CHISWICK PARK
TURNHAM GREEN
STAMFORD BROOK
RAVENS-COURT PARK
WEST KENSINGTON
EARL'S COURT
SOUTH KENSINGTON
VICTORIA
WESTMINSTER
GUNNERSBURY
KEW GARDENS
RICHMOND
WEST BROMPTON
FULHAM BROADWAY
PARSONS GREEN
PUTNEY BRIDGE
EAST PUTNEY
SOUTHFIELDS
WIMBLEDON PARK
WIMBLEDON
RIVER THAMES
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
NEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHN'S WOOD
BAKER STREET
GREAT PORTLAND STREET
REGENT'S PARK
OXFORD CIRCUS
TOTTENHAM COURT ROAD
GOODGE STREET
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BURNT OAK
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TRAFALGAR SQUARE
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CANNON STREET
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EPPING
THEYDON BOIS
DEBDEN
LOUGHTON
BUCKHURST HILL
RODING VALLEY
GRANGE HILL
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HAINAULT
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BARKINGSIDE
NEWBURY PARK
SOUTH WOODFORD
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LEYTON
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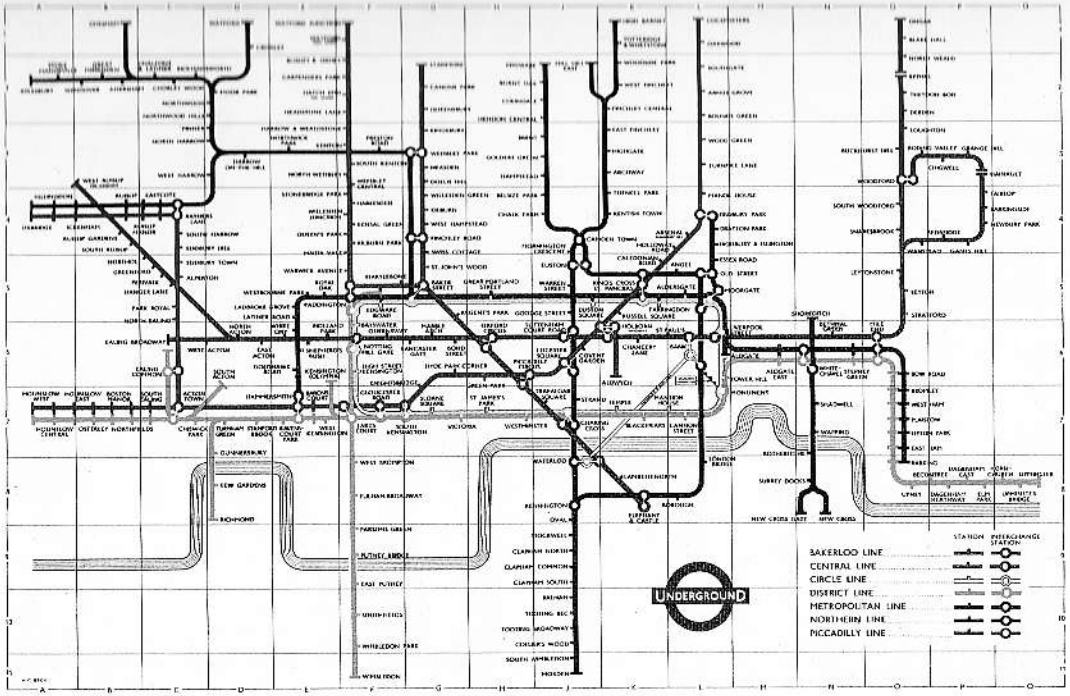
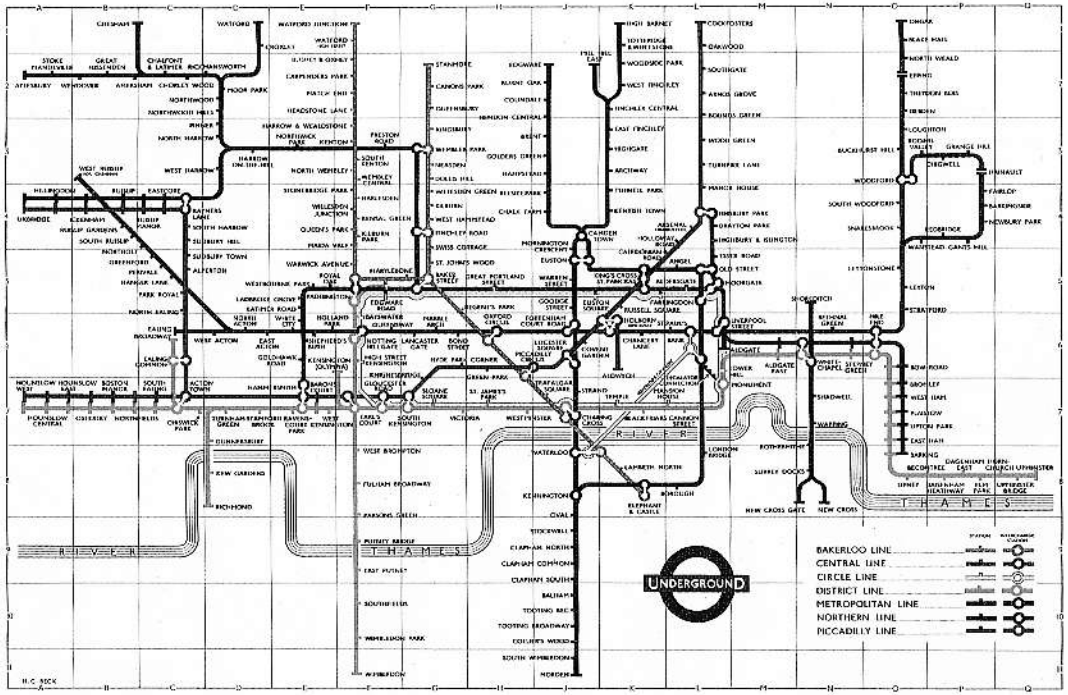
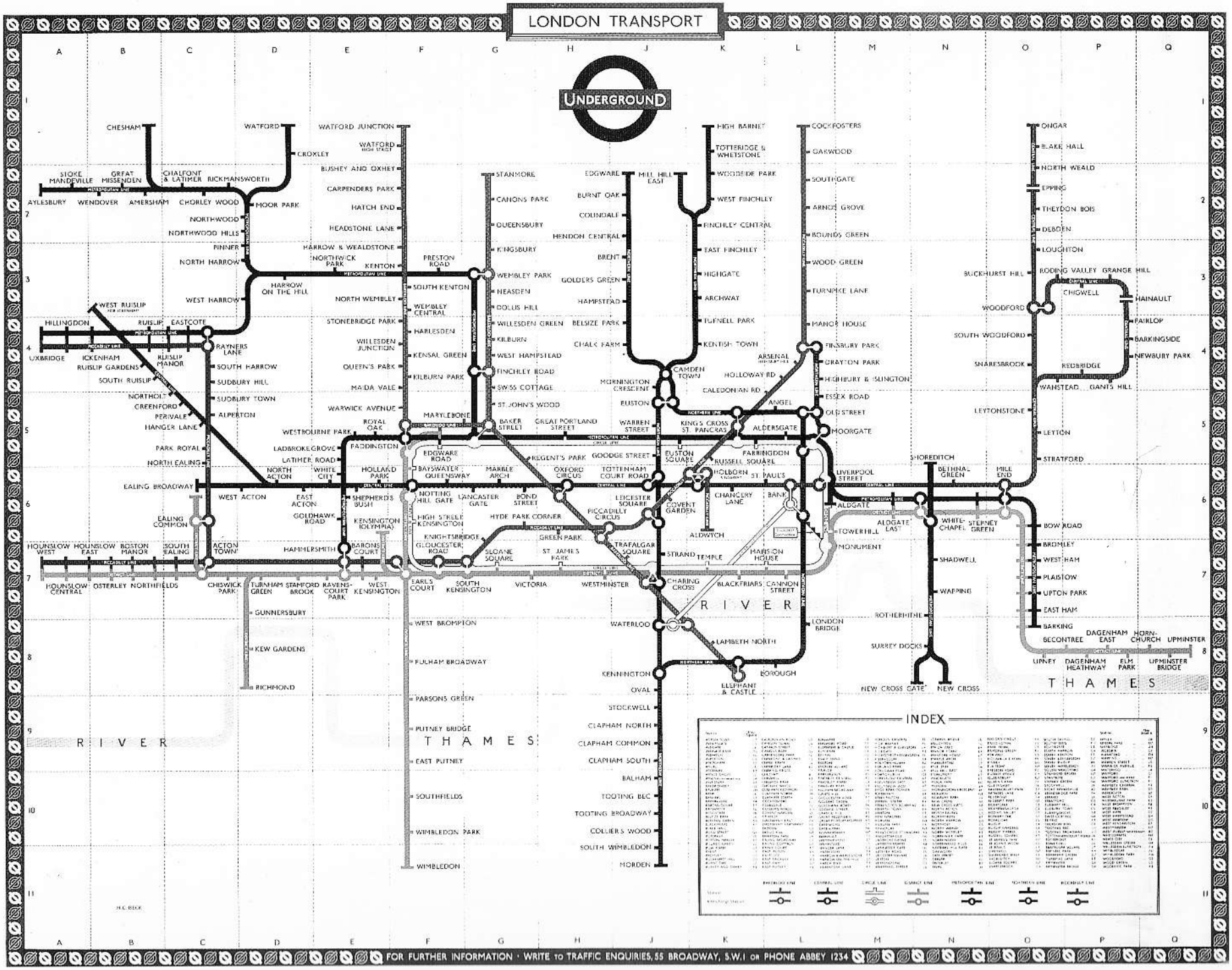
35 Quad royal poster of 1956 (left), showing how the route lines were thickened to incorporate their names within them in white lettering, a throwback to the designs of 1935-37. In addition to the new features already noted in the 1954 card folder (see **34**), the poster included a revamped reference grid of 11 x 16 squares, as against the much less intrusive 4 x 6 grid introduced in 1951. This was a doubtful modification, and one that Beck regretted in retrospect, though at the time it seemed appropriate to his continuing search for an ever more informative design.

36, 37 Card folders of 1957 (above right) and 1959 (below right). Though identical at first glance, a closer inspection reveals that the 1959 edition was completely redrawn. For no obvious reason Beck decided to tighten all the curves on the route lines. This change is most apparent in the branching above Camden Town on the Northern Line. It is difficult to see why the redrawing of all the curves – a most exacting and time-consuming exercise – was seen as an improvement worthy of the effort. Intriguingly, the curves of the River Thames were made more generous in the 1959 edition.






LONDON TRANSPORT
UNDERGROUND
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WATFORD JUNCTION
WATFORD HIGH STREET
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CARPENDERS PARK
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HEADSTONE LANE
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SOUTH KENTON
NORTH WEMBLEY
WEMBLEY CENTRAL
STONEBRIDGE PARK
HARLESDEN
WILLESDEN JUNCTION
KENSAL GREEN
QUEEN'S PARK
KILBURN PARK
MAIDA VALE
WARWICK AVENUE
MARYLEBONE
WESTBOURNE PARK
ROYAL OAK
PADDINGTON
LADBROKE GROVE
LATIMER ROAD
NORTH ACTON
WHITE CITY
HOLLAND PARK
EDGWARE ROAD
BAYSWATER
QUEENSWAY
MARBLE ARCH
REGENT'S PARK
OXFORD CIRCUS
GOODGE STREET
TOTTENHAM COURT ROAD
EUSTON SQUARE
FARRINGDON
RUSSELL SQUARE
HOLBORN
ST. PAUL'S
LIVERPOOL STREET
SHOREDITCH
BETHNAL GREEN
MILE END
STANMORE
CANONS PARK
QUEENSBURY
KINGSBURY
WEMBLEY PARK
HEASDEN
DOLLIS HILL
WILLESDEN GREEN
KILBURN
WEST HAMPSTEAD
FINCHLEY ROAD
SWISS COTTAGE
ST. JOHN'S WOOD
BAKER STREET
GREAT PORTLAND STREET
EDGWARE
BURNT OAK
COLINDALE
HENDON CENTRAL
BRENT
GOLDERS GREEN
HAMPSTEAD
BELSIZE PARK
CHALK FARM
MILL HILL EAST
MORNINGTON CRESCENT
EUSTON
WARREN STREET
CAMDEN TOWN
KING'S CROSS ST. PANCRAS
ARSENAL
HOLLOWAY RD.
CALEDONIAN RD.
ANGEL
ALDERSGATE
HIGH BARNET
TOTTERIDGE & WHETSTONE
WOODSIDE PARK
WEST FINCHLEY
FINCHLEY CENTRAL
EAST FINCHLEY
HIGHGATE
ARCHWAY
TUFNELL PARK
KENTISH TOWN
COCKFOSTERS
OAKWOOD
SOUTHGATE
ARNOS GROVE
BOUNDS GREEN
WOOD GREEN
TURNPIKE LANE
MANOR HOUSE
FINSBURY PARK
GRAYTON PARK
HIGHBURY & ISLINGTON
ESSEX ROAD
OLD STREET
MOORGATE
ONGAR
BLAKE HALL
NORTH WEALD
EPPING
THEYDON BOIS
DEBDEN
LOUGHTON
BUCKHURST HILL
RODING VALLEY
GRANGE HILL
CHIGWELL
HAINAULT
WOODFORD
FAIRLOP
SOUTH WOODFORD
BARKINGSIDE
SNARESBROOK
REDBRIDGE
NEWBURY PARK
WANSTEAD
GANTS HILL
LEYTONSTONE
LEYTON
STRATFORD
AYLESBURY
WENDOVER
AMERSHAM
CHORLEY WOOD
STOKE MANDEVILLE
GREAT MISSENDEN
CHALFONT & LATIMER
RICKMANSWORTH
MOOR PARK
NORTHWOOD
NORTHWOOD HILLS
PINNER
NORTH HARROW
HARROW ON THE HILL
WEST HARROW
WEST RUISLIP
HILLINGDON
RUISLIP
EASTCOTE
UXBRIDGE
ICKENHAM
RUISLIP GARDENS
RUISLIP MANOR
RAYNERS LANE
SOUTH HARROW
SOUTH RUISLIP
SUDBURY HILL
NORTHOLT
SUDBURY TOWN
GREENFORD
PERIVALE
ALPERTON
HANGER LANE
PARK ROYAL
NORTH EALING
EALING BROADWAY
WEST ACTON
EAST ACTON
EALING COMMON
SHEPHERD'S BUSH
GOLDHAWK ROAD
KENSINGTON (OLYMPIA)
NOTTING HILL GATE
LANCASTER GATE
BOND STREET
HIGH STREET KENSINGTON
HYDE PARK CORNER
KNIGHTSBRIDGE
GLOUCESTER ROAD
SLOANE SQUARE
GREEN PARK
ST. JAMES PARK
PICCADILLY CIRCUS
LEICESTER SQUARE
COVENT GARDEN
TRAFALGAR SQUARE
CHANCERY LANE
BANK
ALDWYCH
STRAND
TEMPLE
MANSION HOUSE
CHARING CROSS
BLACKFRIARS
CANNON STREET
ALDGATE
ALDGATE EAST
TOWER HILL
MONUMENT
WHITE-CHAPEL
STEPNEY GREEN
SHADWELL
WAPPING
ROTHERHITHE
SURREY DOCKS
NEW CROSS GATE
NEW CROSS
LONDON BRIDGE
BOW ROAD
BROMLEY
WEST HAM
PLAISTOW
UPTON PARK
EAST HAM
BARKING
BECONTREE
DAGENHAM EAST
HORN-CHURCH
UPMINSTER
UPNEY
DAGENHAM HEATHWAY
ELM PARK
UPMINSTER BRIDGE
HOUNSLOW WEST
HOUNSLOW EAST
BOSTON MANOR
SOUTH EALING
HOUNSLOW CENTRAL
OSTERLEY
NORTHFIELDS
ACTON TOWN
CHISWICK PARK
TURNHAM GREEN
STAMFORD BROOK
RAVENS-COURT PARK
HAMMERSMITH
BARONS COURT
WEST KENSINGTON
GUNNERSBURY
KEW GARDENS
RICHMOND
EARLS COURT
SOUTH KENSINGTON
VICTORIA
WESTMINSTER
WATERLOO
LAMBETH NORTH
ELEPHANT & CASTLE
BOROUGH
KENNINGTON
OVAL
STOCKWELL
CLAPHAM NORTH
CLAPHAM COMMON
CLAPHAM SOUTH
BALHAM
TOOTING BEC
TOOTING BROADWAY
COLLIERS WOOD
SOUTH WIMBLEDON
MORDEN
WEST BROMPTON
FULHAM BROADWAY
PARSONS GREEN
PUTNEY BRIDGE
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WIMBLEDON
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FOR FURTHER INFORMATION · WRITE TO TRAFFIC ENQUIRIES, 55 BROADWAY, S.W.1 OR PHONE ABBEY 1234

Fine tuning or just fiddling about?

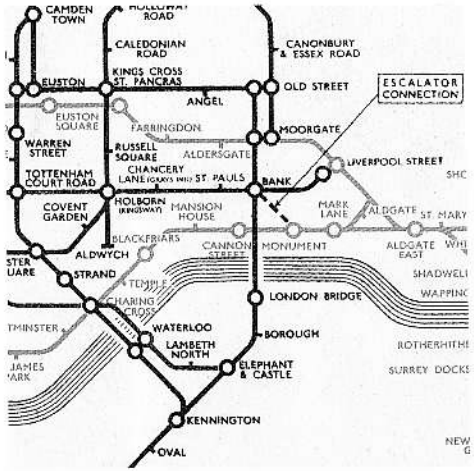
Among the minor changes and adjustments noted above, only one — the deletion of the South Acton branch — was the result of a physical change in the network itself; the others could be classified as a species of fine tuning. Beck's long custodianship of the Diagram had understandably induced in him a passion for detail that sometimes appeared obsessive. One of the less significant features of the Underground network was the escalator linking Monument and Bank stations (**39**). First announced in September 1933, the prominent notice given to this took the form of a large box with the words 'Escalator connection between Bank and Monument Stations' in Johnston capitals appreciably larger than the station names themselves, from which extended a pointer to a broken-line link between the station rings. This continued until 1937, when the box was made smaller; the lettering also was smaller, simplified to 'Escalator connection' and no longer reversed out of a dark ground. By 1940 the box had disappeared and the broken line had become a zigzag line with the single word 'Escalator' alongside it; in 1943 the zigzag line had shrunk almost to nothing and the lettering had disappeared. By 1946, Monument station had been repositioned so close to Bank station that there was no room for even a minimal indication; and it was not until 1954, with the redrawing of the Circle Line as a rectangle, that it could once more be shown. This time it was as three solid triangles representing a flight of stairs, accompanied by the minute lettering already referred to.

Though some of the changes to this feature were required by the adjustments to the general geometry of the Diagram, others were more in the nature of experiments or even — dare it be said? — whims. And if so, why not? None of these flights of fancy ever interfered with the clarity of the essential information; and for the *aficionados* of the Diagram they are an incidental delight.

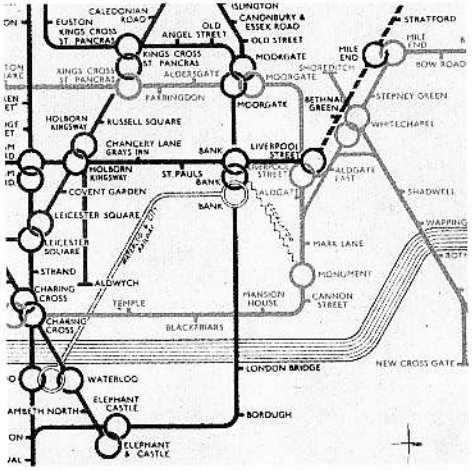
But the minor adjustments and fine tuning which had preoccupied Beck for the last four years were small potatoes compared to the task he was already looking forward to with keen anticipation. In the late 1950s, planning was at an advanced stage for the Victoria Line, the first completely new Tube line since the opening of the 'Hampstead Tube' in 1907. Beck was anxious to begin the preliminary work involved in adjusting the Diagram to accommodate the new line. The challenge, he believed, would provide a new lease of life for the Diagram, and for its designer.

38 Quad royal poster of 1959. Though of course he was not aware of it at the time, this was to be Beck's last published poster version of the Diagram. Based on the same artwork as the 1956 edition and in most respects identical, it offers a 'spot-the-difference' opportunity for the eagle-eyed and a demonstration of Beck's ongoing passion for fine tuning. Apart from the obvious deletion resulting from the closing of the under-used shuttle between Acton Town and South Acton on the District Line, the following small changes have been detected: an extra white-line connector added at Charing Cross, between the Northern and Bakerloo Lines; the words 'Escalator Connection' between Monument and Bank stations changed from caps to upper-and-lower case; abbreviation of 'Caledonian Road' and 'Holloway Road' to 'Caledonian Rd' and 'Holloway Rd', a unique concession not previously allowed to Beck; 'Camden Town' altered from single line to double line setting; ampersand in 'Totteridge & Whetstone' moved from beginning of second line to end of first line (why?); 'Leicester Square' rearranged so that 'Square' was centred under 'Leicester' rather than ranged left; 'St James's Park' changed to 'St Jame's Park', an inexplicable mistake for which heads would have been hung in shame when it was revealed – too late; and lastly, 'Railways' in the roundel changed to 'Underground', easily missed though it was the largest lettering on the poster.

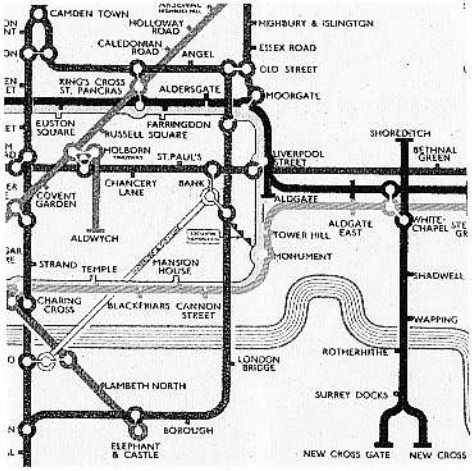
1937



1940



1954



39 Changing styles in representing the escalator link between Monument and Bank stations. For its first appearance, see **18**.